DOCUMENT RESUME

ED 398 401 CE 072 250

AUTHOR	Kemple, James J.; Rock, JoAnn Leah
TITLE	Career Academies. Early Implementation Lessons from a 10-Site Evaluation.
INSTITUTION	Manpower Demonstration Research Corp., New York, N.Y.
PUB DATE	Jul 96
NOTE	179p.
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC08 Plus Postage.
DESCRIPTORS	Admission Criteria; *Career Academies; Career Education; *Educational Change; *Education Work Relationship; Family Characteristics; High Schools; Program Effectiveness; Program Evaluation; Program Implementation; Student Characteristics; Student Recruitment; Vocational Education

ABSTRACT

This first report from a national evaluation of Career Academies describes the program's scale (1,953 students and their teachers, at 10 sites), scope (educational, developmental, and employment-related results), and random assignment design. Chapter 1 describes the Career Academy approach, explores why it has attracted the attention of education reformers and proponents of the school-to-work movement, and presents an overview of the research design. Chapter 2 describes the process by which the high schools and their Career Academies participating in the Career Academies Evaluation were identified and selected and presents the demographic characteristics of the school districts in which they are located. Chapter 3 describes the key features of the Career Academies and highlights some similarities and differences. Chapter 4 describes the student recruitment, application, and selection processes used by the Career Academies and discusses how the random assignment procedures were incorporated into existing procedures. Chapter 5 describes the background characteristics of the students and their families and discusses the extent to which these characteristics indicate that students may be at risk of dropping out of high school. Chapter 6 offers some preliminary findings on students' patterns of participation in the programs. Chapter 7 describes the teachers in the Career Academies and compares their perspectives on teaching and their work environment with those of their colleagues in the regular high school programs. Contains 52 references, 23 tables, and 5 figures. Items from the teacher questionnaire used to create indicators of teachers' perceptions of their work are appended. (YLB)

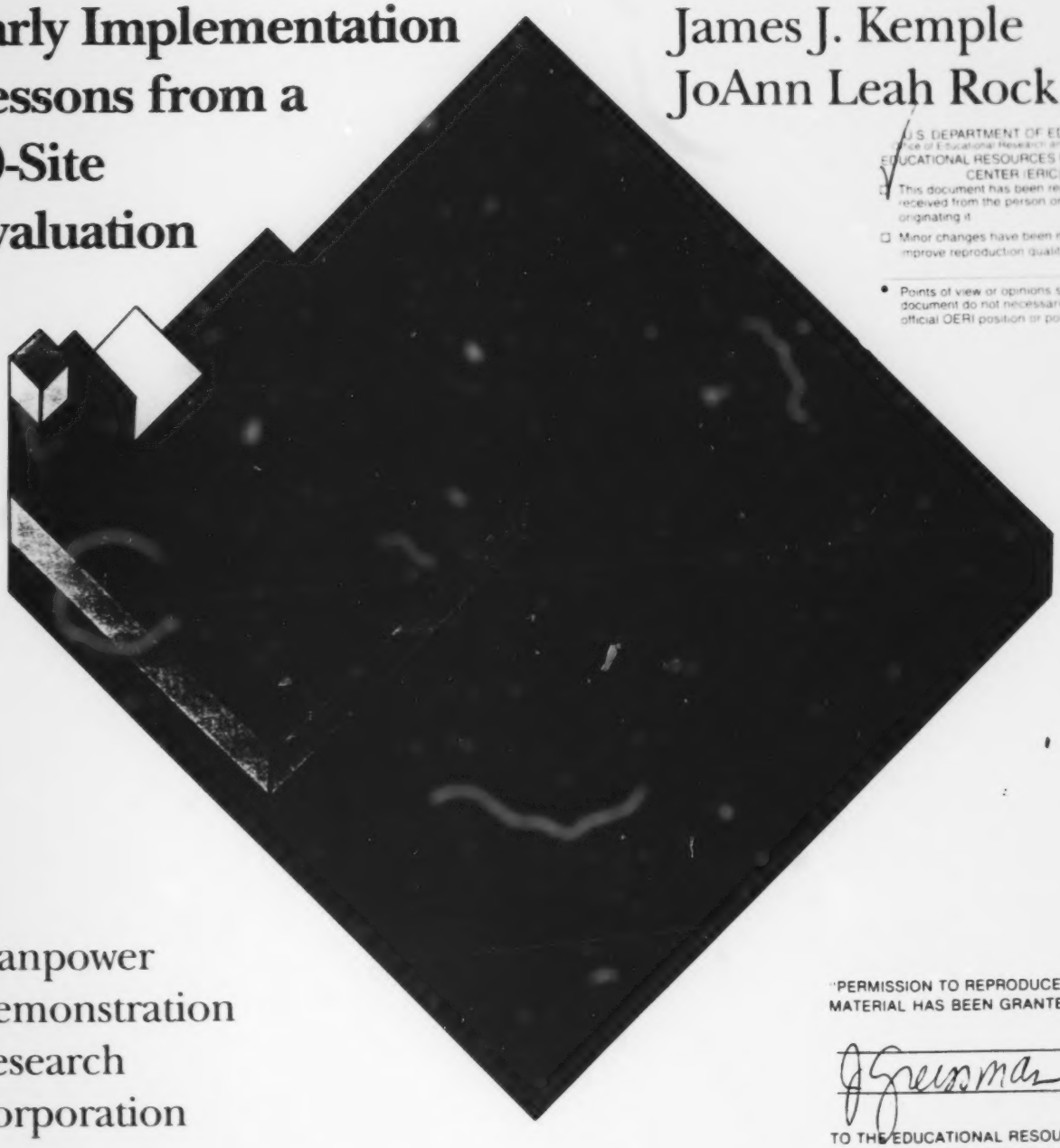
****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 398401

Career Academies

Early Implementation Lessons from a 10-Site Evaluation

James J. Kemple
JoAnn Leah Rock



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Manpower Demonstration Research Corporation

July 1996

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J Greenman

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

MDRC

CE 072 250

BOARD OF DIRECTORS

RICHARD P. NATHAN, *Chairman*
Provost, Rockefeller College
State University of New York
Director, Rockefeller Institute
of Government

PAUL H. O'NEILL, *Treasurer*
Chairman and CEO
Alcoa

ELI GINZBERG, *Chairman Emeritus*
Director
The Eisenhower Center for the
Conservation of Human Resources
Columbia University

REBECCA M. BLANK
Professor of Economics
Northwestern University

ANTONIA HERNANDEZ
President and General Counsel
Mexican American Legal Defense and
Educational Fund

ANNA KONDRATAS
Senior Fellow
Hudson Institute

RICHARD J. MURNANE
Professor of Education
Graduate School of Education
Harvard University

RUDOLPH G. PENNER
Director of Economic Studies
Policy Economics Group
KPMG Peat Marwick

FRANKLIN D. RAINES
Vice Chairman
Fannie Mae

ROBERT REISCHAUER
Senior Fellow
Brookings Institution

ROBERT SOLOW
Institute Professor
Massachusetts Institute of Technology

GILBERT STEINER
Senior Fellow
Brookings Institution

MITCHELL SVIRIDOFF
Professor Emeritus and Senior Fellow
Community Development Research Center
New School for Social Research

WILLIAM JULIUS WILSON
Lucy Flower University Professor of
Sociology and Public Policy
The University of Chicago

WILLIAM S. WOODSIDE
Chairman, Sky Chefs, Inc.
Former Chairman and CEO,
Primerica Corporation

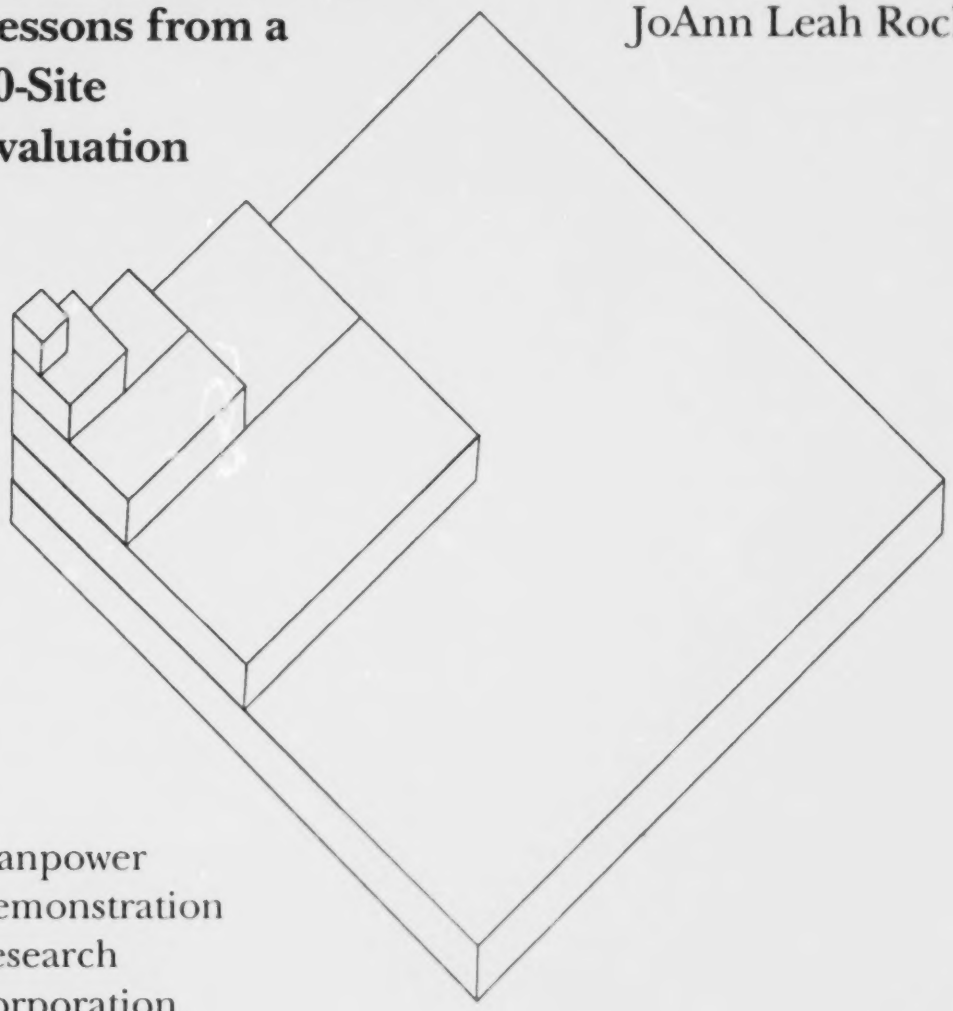
JUDITH M. GUERON
President
Manpower Demonstration Research Corporation

MDRC

Career Academies

Early Implementation Lessons from a 10-Site Evaluation

James J. Kemple
JoAnn Leah Rock



Manpower Demonstration Research Corporation

July 1996

MDRC

The development, production, and distribution of this report were supported by a consortium of funders, including the U.S. Departments of Education and Labor and 14 private foundations: the DeWitt Wallace-Reader's Digest Fund, Ford Foundation, Commonwealth Fund, William T. Grant Foundation, Pew Charitable Trusts, Rockefeller Foundation, George Gund Foundation, Grable Foundation, Richard King Mellon Foundation, American Express Foundation, Alcoa Foundation, Russell Sage Foundation, Westinghouse Foundation, and Bristol-Myers Squibb Foundation.

Dissemination of MDRC reports is also supported by our Public Policy Outreach funders: the Ford Foundation, Ambrose Monell Foundation, Alcoa Foundation, and James Irvine Foundation.

The findings and conclusions in this report do not necessarily represent the official positions or policies of the funders.

Copyright © 1996 by the Manpower Demonstration Research Corporation

Cover design: Rowe & Ballantine

CONTENTS

Tables, Figures, and Boxes v
Preface ix
Acknowledgments xi
Executive Summary ES-1

1 INTRODUCTION 1

I. Structural Problems in High Schools 3
II. How the Career Academy Approach Responds 4
III. The Policy Context 9
IV. The Career Academies Evaluation 11

2 SITE SELECTION 17

I. Site Selection Criteria 17
II. The Site Selection Process 23
III. Characteristics of the Participating School Districts 26

3 CHARACTERISTICS OF THE PARTICIPATING CAREER ACADEMIES 33

I. School-Within-a-School Organization 34
II. Curriculum Planning Around an Occupational Theme 44
III. Employer Partnerships 52
IV. Summary 59

4 THE STUDENT RECRUITMENT AND SELECTION PROCESS 61

I. Marketing and Recruitment 62
II. The Application Process 70
III. Screening for Eligibility 73
IV. Random Assignment and Encouraging Students to Attend the Academies 74
V. Random Assignment and Program Operations 78

5 STUDENTS IN THE CAREER ACADEMIES 81

I. Background Characteristics of the Students in the Full Research Sample 81
II. Students at Risk of Educational Failure 92
III. Key Subgroups for the Career Academies Evaluation 97

6 **ENROLLMENT AND ATTRITION PATTERNS** 99

I. Rates of Initial Enrollment in the Career Academies 100
II. Retention Patterns over Four Semesters Following Initial Enrollment 102

7 **TEACHERS IN THE CAREER ACADEMIES** 105

I. Teachers' Background Characteristics 106
II. Characteristics of Teachers' Workloads 108
III. Career Academies as "Teacher Learning Communities" 111
IV. Teachers' Relationships with Students 115
V. Summary 116

Appendix A: Items from the Teacher Questionnaire Used to Create Indicators of Teachers' Perceptions of Their Work 117

References 121
Selected Publications on MDRC Projects 125

TABLES, FIGURES, AND BOXES

Table

ES-1	Shared Characteristics of the Participating Career Academies	ES-3
ES-2	Selected Characteristics of the Career Academies as of the 1994-95 School Year	ES-9
ES-3	Selected Characteristics of Students in the Research Sample at the Time They Entered the Study	ES-11
ES-4	Rates of Enrollment in the Career Academies Among Program Group Students	ES-13
2.1	Selected Characteristics of Participating School Districts and Their Populations	28
3.1	Selected Characteristics of the School-Within-a-School Organization of Career Academies as of the 1994-95 School Year, by Site	36
3.2	Academic Subjects and Occupational-Theme Classes Offered Within Career Academies as of the 1994-95 School Year, by Site	46
3.3	Selected Characteristics of Work-Based Activities and Employer Partnerships as of the 1994-95 School Year, by Site	56
4.1	Target Groups and Marketing Strategies of Career Academies	65
4.2	Application Procedures and Eligibility Criteria of Participating Career Academies	71
4.3	Academy Capacity and Random Assignment Status of Eligible Applicants, by Site and Year of Random Assignment	76
5.1	Selected Characteristics of the Research Sample at the Time of Random Assignment	82
5.2	Selected Characteristics of the Research Sample at the Time of Random Assignment, by Site	85
5.3	Selected Educational Characteristics of the Research Sample at the Time of Random Assignment	88
5.4	Selected Educational Characteristics of the Research Sample at the Time of Random Assignment, by Site	90

Table

5.5 Percentage of Students with Selected Characteristics Associated with Risk of Educational Failure: The Career Academies Evaluation Sample at the Time of Random Assignment and the NELS:88 Sample 94

5.6 Percentage of Students in the Research Sample with Selected Characteristics Associated with Risk of Educational Failure at the Time of Random Assignment, by Site 95

5.7 Percentage of Students in the Research Sample with Selected Characteristics Associated with Risk of Educational Failure at the Time of Random Assignment, by Gender and Race/Ethnicity 96

6.1 Rates of Enrollment in the Career Academies Among Program Group Students . . . 101

7.1 Selected Background Characteristics of Academy and Non-Academy Teachers 107

7.2 Selected Characteristics of Academy and Non-Academy Teachers' Workloads 109

7.3 Career Academy and Non-Career Academy Teachers' Perceptions of Aspects of Their Work 113

A.1 Items from the Teacher Questionnaire Used to Create Indicators of Teachers' Perceptions of Their Work 119

Figure

ES-1 Names, Locations, and Affiliations of Participating Career Academies ES-6

1.1 Simplified Model of the Career Academy Approach 5

2.1 Names, Locations, and Affiliations of Participating Career Academies 27

4.1 Simplified Model of the Student Recruitment and Selection Process of Participating Career Academies 63

6.1 The Flow Through the Career Academies for 100 Typical Career Academy Enrollees Within Four Semesters After Initial Enrollment 103

Box

The Independence Electronics Academy (San Jose): Features of the School-Within-a-School Organization 39

The Health Professions Academy (Socorro): Features of the School-Within-a-School Organization 40

Box

The Global Business Academy (Santa Ana): A Project-Based Approach to Integrating Academic and Vocational Curricula 47

The Academy for Aerospace Technology (Cocoa): Integrating Academic and Vocational Curricula with Virtual Learning Activities (VLAs) 49

The Silver Creek Electronics Academy (San Jose): Coordinating Employer Involvement for Several Academies 53

The Academy of Finance (Baltimore): Multiple Roles for Employer Partners 54

The Watsonville Video Academy (Watsonville): Using the School and Community as a Workplace 55

The Academy of Travel and Tourism (Miami Beach): Student Recruitment and Selection Strategies 68

The Public Service Academy (Washington, D.C.): Student Recruitment and Selection Strategies 69

The Business and Finance Academy (Pittsburgh): Helping Low-Achieving Students Make the Transition to the Academy 79

PREFACE

There is wide agreement that large numbers of youth are leaving high school poorly equipped for a productive future, at enormous personal and societal cost. Research conducted by MDRC and others shows that many short-term interventions and dropout recovery programs have met with little success in addressing these problems. In recent years, high schools and employers have been called upon to collaborate in developing and implementing more comprehensive initiatives linking school and work. Under the aegis of the growing "school-to-work" movement, the federal government, states, and local school districts are supporting the efforts of high schools and employers. The result has been the development of an array of approaches aimed at helping high school students achieve academically, while providing them with marketable skills, work-based learning experiences, and clearer pathways to productive employment. In 1994, MDRC documented the early findings and lessons from 16 pioneering school-to-work programs in *Home-Grown Lessons: Innovative Programs Linking Work and High School*. This effort shed light on the accomplishments of these promising education reforms.

One important outgrowth of this research is the Career Academies Evaluation — a study made possible by the strong commitment and cooperation of the 16 Career Academies Evaluation funders and all those associated with the 10 sites. The choice of Career Academies as the subject of MDRC's first major education evaluation reflects in part their potential for improving the lives of large numbers of youth and their significance as harbingers of broader reform in education.

Career Academies embrace the key principles of the school-to-work movement by integrating academic and vocational instruction, providing work-based learning opportunities for students, and preparing students for post-secondary education, employment, or a combination of both. The Academies also reflect key principles of broader school reform initiatives by restructuring high schools into smaller, more personalized schools, providing teachers with more influence over their work through decentralized management, and engaging in interdisciplinary curriculum development. While Career Academies have existed for more than 25 years, the past three years have seen an extraordinary growth in their expansion across the country. MDRC believes that the study can set a precedent for the effective use of evaluations to shape critical initiatives in education and to increase support for innovations that are proved to be effective.

This report provides an overview of the foundation that has been laid for the study and is the first of several that will present results from the Career Academies Evaluation. It describes the 10 Career Academies participating in the study and concludes that each has implemented and sustained the defining structural elements of the Career Academy approach and has distinguished itself from the alternatives available to students in the comprehensive high school in which it operates. The report also shows the flexibility of the Career Academy approach and how it can be adapted to meet local needs and circumstances. It describes the characteristics and educational backgrounds of students who applied to the Career Academies and shows that the programs attract a range of students, including those who have done well in school and those who appear to be at risk of dropping out. Finally, the report provides some preliminary insights into the ways that teachers use the Career Academies to enhance their work with each other and with their students. It also highlights differences in the ways Academy and non-Academy teachers perceive their work environment. We believe the study establishes the framework for a rigorous and credible assessment of the Career Academy approach and its impact on students' high school performance and preparation for further education and employment.

Having established the foundation for the study, MDRC is continuing the data collection and analysis activities that will be the basis of the project's primary reports and papers for policymakers, practitioners, and researchers over the next three years. Future reports will show how Career Academy students perform on a wide range of education outcomes compared to a control group of non-Academy students. MDRC also hopes to begin work on the second phase of the study, which will follow students beyond their high school years to measure effects on their enrollment in post-secondary education and on their employment and earnings.

Judith M. Gueron
President

ACKNOWLEDGMENTS

This study owes a special debt of gratitude to the hundreds of students, teachers, and administrators from the participating sites who allowed MDRC staff to interview them, observe their classrooms and schools, and collect other information about their experiences. They taught us a great deal about life in Career Academies and in high schools. We hope this report credibly reflects some of the lessons they have to offer others who are interested in learning more about Career Academies and related school-to-work transition and school reform initiatives.

The Career Academies Evaluation is the product of a collaboration among MDRC and the participating Career Academies, high schools, and school districts. First, we would like to extend special thanks to the lead teachers, directors, and other administrators who oversee and support the participating Career Academies in their capacities in the high schools and school districts, including: Alexandra Penn, Richard K. Blake, Ruth Fountain, Deborah Donovan, and Carolyn Davis (Academy for Aerospace Technology, Cocoa High School, Cocoa, Florida); Kathleen Floyd, Stanley Holmes, Leewood Macer, and Betsy Banks (Academy of Finance, Lake Clifton/Eastern High School, Baltimore, Maryland); Lupe Ferran Diaz, William Renuart, Ann Fields, Julie Jared, Judy Marty, and Alivia Mingel (Academy of Travel and Tourism, Miami Beach Senior High School, Miami Beach, Florida); Joyce Beckley, John Plavetich, Lester Young, Eunice Anderson, Joseph Poerio, Janet Bell, and Bernard Manning (Business and Finance Academy, George Westinghouse High School, Pittsburgh, Pennsylvania); Blair Barbour, Lisa Vieler, John Sellarole, Julia Lawrence, Tom Key, and Geraldine Padilla (Electronics Academy, Independence High School, San Jose, California); Robert Ocano, Rafael Renteria, Dot Westerhoff, and Traci Holland (Electronics Academy, Silver Creek High School, San Jose, California); Keith Bush, Linda Scanneli, and Leilani Roth (Electronics Academies of East Side Union High School District, San Jose, California); Sheldon Eskow, Robert Nelson, Joan Lucero, Dr. Joseph Tafoya, and Jean Frietze (Global Business Academy, Valley High School, Santa Ana, California); Jan Kehoe, Nancy Sochat, Michael Quatrini, Carl Cooper, and Allen Long (Health Professions Academy, Socorro High School, Socorro, Texas); Howard Brown, Susan Thomas, Stephen Wesley, and Shana Epstein (Public Service Academy, Anacostia Senior High School, Washington, D.C.); and John Burdick, Pat Johns, Lorraine Sandoval-Vigil, Lisa Udell, and Virginia Rico (Watsonville Video Academy, Watsonville High School, Watsonville, California).

We would like to acknowledge the contribution of staff from each of the participating school districts who have played key roles in helping MDRC collect data for the study: Benjamin Feldman and August Treff (Baltimore City Schools); Shari Schmidt and Saul Klein (Brevard County Public Schools); Joseph Gomez, Gisela Feild, and Angela Canasi (Dade County Public Schools); Henry Thompson (District of Columbia Public Schools); Leilani Roth (East Side Union High School District); Sioux George (Pajaro Valley Unified School District); John Cica (Pittsburgh Public Schools); Kam Nip (Santa Ana Unified School District); and Nancy Rojas (Socorro Independent School District).

This project would not be possible without the vision and support of the funding organizations listed at the front of this report. We are also indebted to the members of the Career Academies Advisory Panel, who provided valuable guidance on developing many of the data collection strategies and instruments for the evaluation, including: James P. Connell, Robert Crain, Charles Dayton, James McPartland, Richard Murnane, Charles Payne, Robert Peterkin, Marilyn Raby, Fransisco Riveria-Batiz, David Stern, and Joan Talbert. James Connell, Charles Dayton, Marilyn Raby, and David Stern also provided useful comments on an earlier draft of this report. We would also like to thank the following people, who have provided ongoing support and guidance to the study: J. D. Hoye and

Nevzer Stacey from the National School-to-Work Office; David Boesel and Mindi Maline from the U.S. Department of Education's Office of Educational Research and Improvement; Raymond Uhalde, David Lah, and Marlin Ferrell from the U.S. Department of Labor; John Dow and Bonnie Silver from the National Academy Foundation; Susan Tidyman from the California Partnership Academies; and Glenn Thomas and Craig Winger from the Florida Department of Education.

We thank the teachers from each of the participating Career Academies who allowed us to interview them and observe their classes:

Academy for Aerospace Technology (Cocoa, Florida)
James Andrews
Gilbert Burlew
Thomas Fitzgerald
Kathleen Fuller
Leon Gaither
Joe Harvey
Carolyn Hendricks
Debbie Ocker
Kendra Sisserson

Academy of Finance (Baltimore, Maryland)
John Baker
Yvonne Brown
Ion Clay-Howell
William Connor
Dominic DiCocco
Dorothy Edwards
Ivan Gettle
Barbara Gordon
Patricia Hamilton
Barbara Schegel
William Shulteis
Regina Taylor
Pamela Williamson

Academy of Travel and Tourism (Miami Beach, Florida)
Jackie Benjamin
Lisa Davenport
Rey Delgado
Ed Devarona
Verna Edington
Judd Hayes
Terry Kurpius
Luis Sanchez

Business and Finance Academy (Pittsburgh, Pennsylvania)
Frank Aceta
Joyce Beckley
Mary Berry
Elaine Drake
Barry Fulks
Melanie Humphrey
Carolyn Olasewere
Gloria Spencer

Electronics Academy (Independence High School, San Jose, California)
Blair Barbour
Bruce Berg
Jan Bowen
Gerry Herrick
Dan Sanchez
Lisa Vieler

Electronics Academy (Silver Creek High School, San Jose, California)
Gina Campanella
Diana Howe
Bob Ocano
Frank Slayton
Mary Summers

Global Business Academy (Santa Ana, California)
Mark Bartholio
Lamberto Castillo
Nancy Dervis
Sheldon Eskow
Charlotte Griswold
Jeff Hittenberger
Sheri McDonald
Danielle Yorko

Health Professions Academy (Socorro, Texas)
Roberta Carson
Kenny Collins
Chris Elliott
Paul Harrington
Jim Hinz
Jan Kehoe
Larry Mladek
Suzanne Palmer
Don Patin
Celeste Sevcik
Nancy Sochat
Vera Villa
Ashley Wilson

Public Service Academy (Washington, D.C.)
Angela Benjamin
Frank Briscoe
James Dickens
Mary Doyle
Darryl McDuffie
Jeanne Montague
Michael Moore
Blanch Newton
Michael Moore
Lynn Poe
Phyllis Samuels
Susan Thomas
Anthony Umelo

Watsonville Video Academy (Watsonville, California)
John Burdick
Scott Correa-Mickel
Richard Hardy
Diane Hickok
Chris Kopecky
Thomas Leikam
Gerardo Loyola
Huve Rivas

At MDRC, we received support and assistance from many people. Rob Ivry led the effort to plan and implement the evaluation from its inception and was instrumental in guiding the site identification and selection process. John Wallace has provided overall management for the project. From MDRC's Operations Department, Mary Andes, Susan Kagehiro, Marilyn Price, Rachel Pedraza, Deborah Thompson, and Martha Martinez, as well as Suzanne Lynn, developed and sustained productive relationships with the sites. From MDRC's Information Services Department, Karen Paget provided overall management, and Anita Kraus, David Navarro, and Marla Sherman played key roles in data collection and processing, with the able assistance of Frank Yang, Shirley James, and the Data Room staff. From the Research Department, George Cave and Edward Pauly played an integral role in designing the study and helping to shape the data collection and analysis plans. We received first-rate research assistance from Lauren Brown, who also prepared the tables — with help from Crystal Hayes — and from Jean Knab. Robert Granger, Judith Gueron, Rob Ivry, Edward Pauly, and John Wallace reviewed the report, along with the other members of the team. Betsy Dossett edited the report, which was prepared for publication by Stephanie Cowell and Patt Pontevolpe.

The Authors

EXECUTIVE SUMMARY

Critics of America's education system contend that young people are leaving high schools without the preparation they need for good jobs: ones that pay well, provide benefits, and offer opportunity for advancement. Economic prospects for high school dropouts are especially grim; they can expect to earn about half as much as graduates with some post-high school education. Increasingly, today's labor market places a premium on such abilities as hands-on problem-solving, technical knowledge, and effective teamwork, yet such skills are rarely taught in large comprehensive high schools. In fact, fewer than half the youth in the United States acquire the skills and knowledge required for meaningful and productive work in today's labor market, according to the Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS).

SCANS, and numerous reports from researchers and blue-ribbon panels, have heightened the call from policymakers, educators, and the business community for innovative responses to these problems. Often referred to as "school-to-work transition" reforms, these efforts aim to help high school students achieve academically, while providing them with marketable skills, work-based learning experiences, and clearer pathways to post-secondary education and productive employment. One of the best-established and most promising school-to-work approaches is the Career Academy.

Career Academies are one of several school-to-work approaches specifically authorized under the School-to-Work Opportunities Act of 1994, a major milestone in the school-to-work movement. The Career Academies are "schools-within-schools" in which groups of students (usually 30 to 60 per grade in grades 9 through 12 or 10 through 12) take several classes together each year with the same group of teachers. The Academies focus on a career theme, such as health, business and finance, or electronics, which is usually determined by local employment opportunities and evidence of growing demand for such expertise in the marketplace. Career Academies' curricula consist of traditional academic classes (such as math, English, science, and social studies) combined with occupation-related classes that focus on the career theme. Local employers from that field help plan and guide the program, and they serve as mentors and provide work experience for the students.

A growing number of states and school districts are beginning to invest in new Career Academies and are looking for evidence of their effectiveness and for information about how they can be implemented and sustained. To meet this need, the Manpower Demonstration Research Corporation (MDRC) is conducting a unique evaluation of the Academy approach. The evaluation will provide a rigorous and credible assessment of the extent to which the Academy approach improves students' engagement and performance in high school, as well as their preparation for further education and employment beyond high school. The evaluation includes 10 high schools and the Career Academies that operate within them. The Academies are located in a diverse set of urban and small-city high schools that serve high proportions of low-income students, students of color, and students with limited English proficiency. The evaluation is being supported by a consortium of funders, including the U.S. Departments of Education and Labor and 14 private foundations: the DeWitt Wallace-Reader's Digest Fund, Ford Foundation, Commonwealth Fund, William T. Grant Foundation, Pew Charitable Trusts, Rockefeller Foundation, George Gund Foundation, Grable Foundation, Richard King Mellon Foundation, American Express Foundation, Alcoa Foundation, Russell Sage Foundation, Westinghouse Foundation, and Bristol-Myers Squibb Foundation.

This is the first report on the Career Academies Evaluation. It includes several preliminary

findings that have important implications both for the evaluation and for policy and practice related to the Career Academies and other school-to-work approaches. Later reports will include additional analyses of how the Career Academies operate and will examine students' and teachers' experiences in the Academy and non-Academy high school environments. These reports will also include findings on the extent to which the Academies improve education and work-related outcomes for students.

Key Findings in Brief

Field research, interviews, and surveys revealed several significant findings about the Career Academies in this evaluation. These findings are summarized here and discussed in more detail below.

- All 10 of the participating high schools implemented and sustained the demanding structural elements of the Academy approach: a school-within-a-school, a curriculum that combines academic and occupation-related courses oriented toward a career theme, and partnerships with local employers. This finding shows that the evaluation can provide a valid test of the effectiveness of the Career Academy approach as it exists in a range of high schools.
- The participating Career Academies vary in ways that underscore their adaptability to each school's needs and circumstances, demonstrating that the approach can be implemented in a wide range of school settings.
- The participating Career Academies have attracted large numbers of applicants with a high degree of demographic and educational diversity. Their broad appeal extends to students who are at risk of performing poorly or of dropping out of school, as well as to students who do well in school.
- A large majority of the students who were selected to participate in the Career Academies enrolled in them (84 percent), and three-quarters of those who enrolled were still participating two years later. Given the high rate of school transfers among similar, non-Academy students, these rates of enrollment and retention should be viewed as substantial.
- Compared to their colleagues who do not teach Academy classes, Career Academy teachers report having more opportunities to collaborate with each other, are more likely to see their environment as a learning community, and are more likely to develop more personalized relationships with their students. There is considerable evidence that these changes contribute to the quality of teaching and learning within high schools.

What Is a Career Academy?

Creating a Career Academy requires establishing a new structural framework that is not found in most high schools to change the way teaching and learning occur. The essential structural features of the Career Academy approach are those that alter the organization of classes within a high school, modify the official curriculum, and establish new links between the high school and local employers. Table ES-1 lists the defining characteristics of the Academy structures: the school-within-a-school

Table ES-1

The Career Academies Evaluation

Shared Characteristics of the Participating Career Academies

School-Within-a-School Organization	Combined Academic/Occupational Curriculum	Employer Partnerships
• Clusters of students who share several classes each day and have some of the same teachers from year to year. • Clusters of teachers from academic and vocational disciplines who are scheduled to have mostly Academy students in their classes, who make a commitment to meeting with each other on a regular basis, and who share in decision-making related to administrative policies, curriculum content, and instruction. • A teacher or director who assumes lead responsibility for administrative tasks and usually serves as a liaison to the school principal and other building administrators, school district officials, and employer partners.	• Academic courses that meet high school graduation and college entrance requirements, and occupation-related courses that focus on the career theme. • Shared planning time for Academy teachers to coordinated course content and instructional strategies. • Employability skills that are taught in the vocational courses and in one or more academic courses. • Work-based learning opportunities for students that link classroom activities to work internships with local employer partners. • Career and college counseling to inform students about options and planning for further education and employment.	• An advisory group that includes representatives from the local employer community, the Career Academy, and the school district. • A coordinator who serves as the liaison between employers, the Career Academy, and the school district. • An internship program that combines school- and work-based supervision and learning. • Financial or in-kind support from employers.

organization, the career-oriented academic and occupational curriculum, and employer partnerships. These structural features are shared by all the Career Academies in the evaluation.

Career Academies, which have existed for more than 25 years, began in Philadelphia in 1969 as dropout prevention programs. The goals of the Career Academies have evolved over time to include academic and occupational preparation for both students interested in college and those who plan to enter the work world directly after high school. Currently, there are Career Academies in more than 300 high schools throughout the United States, created by individual high schools, state and district networks, and the National Academy Foundation – a nonprofit organization that has developed Academy programs in finance, travel and tourism, and public service.

Increasingly, the Career Academy approach is seen as a potentially powerful way to improve students' success in school and work. The approach is intended to address several long-standing problems through its structural characteristics: The school-within-a-school feature, for example, is designed to address the feelings of anonymity and solitude that many students experience in large comprehensive high schools. The small-school environment is also designed to allow teachers and students to form closer bonds, and to create a strong peer group support system. Many students describe their Career Academies as being "like a family" and report that they "give them courage to do what they need to do" to succeed in high school.

Another Academy feature, the career-oriented curriculum, is intended to address the problem of high school classes being divorced from the real world, and students' feelings that they gain little benefit from achieving in school. There is steadily increasing evidence that students learn best when course content and instruction are based on problem-solving, real-life projects and hands-on learning opportunities. The third Academy structural characteristic, employer partnerships, is also designed to bring the world of work closer to students' lives and school experiences. These partnerships offer students opportunities to explore career options through work experiences, mentorships, and interaction with workers in the Academy's career field.

The Career Academies Evaluation

The Career Academies Evaluation responds to the growing need for reliable information about the effectiveness of school-to-work and other major school reform initiatives by providing policy- and practice-relevant information on two broad questions:

- How do Career Academies work, and how do they shape students' education and career preparation?
- To what extent do the Career Academies change students' school- and career-related outcomes beyond what they would have achieved anyway had they not had the opportunity to participate in an Academy?

This evaluation will measure the extent to which the Career Academies improve students' engagement and motivation in school, their progress toward graduation, and their preparation for post-secondary education and work. It relies on a random assignment research design in which each of the participating Career Academies identified approximately twice as many eligible applicants as they were able to serve. Then, working with MDRC, they used a lottery-like process to assign students to one of two groups: "the program group," which was invited to participate, or the "control group," which was not invited to participate. Because these two groups were created randomly from a single pool

of eligible applicants, there were no systematic differences between them at the time they entered the evaluation. By measuring any subsequent differences between the two groups – for example, in attendance or graduation rates – after the program group is exposed to the Career Academies, one can measure the program's true effect on these outcomes. The Career Academies Evaluation is a notable accomplishment in the field of education research in that it demonstrates the feasibility of conducting random assignment within an ongoing high school program.

For this evaluation, a total of 1,953 students from the 10 sites have entered the research sample over three school years. All of these students were determined by the respective Career Academies to be eligible and appropriate for participation in their programs. Of these, 1,064 students were randomly assigned to the program group and were admitted to the Academies. The remaining 889 students were randomly assigned to the control group, were not invited to participate in the Academies, and were able to choose other options in the high school or school district. MDRC plans to follow the students in the research sample through their scheduled graduation from high school. Eventually, MDRC plans to follow students through several years after their scheduled graduation from high school to learn about their enrollment and progress through post-secondary education, their employment and earnings, and other outcomes.

Data for the evaluation will come from a questionnaire students completed at the time they applied to the Career Academies; students' school records on attendance, achievement, course-taking patterns, and progress through high school; and self-completed questionnaires that are being administered within the first two years following students' entry into the evaluation and again during their 12th grade year. Other data will come from a Teacher Questionnaire administered to Academy and non-Academy teachers in the participating high schools, and from MDRC staff field research visits to each of the participating sites, during which Academy teachers and students, school and district administrators, and local employers involved in the Academy programs were interviewed. MDRC staff also observed classes and other program activities such as student recruitment and special events.

Sites in the Evaluation

MDRC chose the 10 sites participating in the Career Academies Evaluation strategically and through negotiation with the key stakeholders (the district administrators, school principals, Academy staff, and parents) in the school districts and high schools. The selection strategy was intended to identify Career Academies that would give a credible test of the Career Academy approach as it was defined in previous research and implemented in a broad range of settings. The goal was to ensure that the evaluation would include functioning Career Academies that encompassed the defining structural elements of the approach, rather than programs that were in initial or partial stages of implementation. Other selection criteria were that the Academies were in school districts and high schools that reflected the diversity of circumstances under which Career Academies have been implemented, and that they served a range of students, including those who were perceived to be at risk of not succeeding in the regular high school environment and those who appeared to be doing well in school. Finally, participating schools had to agree to carry out the requirements of the random assignment design and other data collection and research activities.

Figure ES-1 shows the names, locations, and affiliations of the 10 Career Academies participating in the evaluation. The participating Academies offer a range of occupational themes: three are in the business and finance fields; three focus on high-technology areas such as electronics and aerospace technology; and one each is in the fields of health occupations, public service, travel

Figure ES-1

Career Academies Evaluation

Names, Locations, and Affiliations of Participating Career Academies

	Academy and High School	School District and City	Academy Network and School Year Academy Started
1.	Business and Finance Academy George Westinghouse High School	Pittsburgh Public Schools Pittsburgh, PA	Independent 1984-85
2.	Academy of Finance Lake Clifton/Eastern High School	Baltimore City Public Schools Baltimore, MD	National Academy Foundation 1987-88
3.	Public Service Academy Anacostia High School	District of Columbia Public Schools Washington, D.C.	D.C. Public Schools Academy Network 1989-90
4.	Academy for Aerospace Technology Cocoa High School	Brevard County Public Schools Cocoa, FL	Florida's Academies for Career Development and Applied Technology 1993-94
5.	Academy of Travel and Tourism Miami Beach Senior High School	Dade County Public Schools Miami Beach, FL	National Academy Foundation 1991-92
6.	Health Professions Academy Socorro High School	Socorro Independent School District Socorro, TX	Independent 1991-92
7.	Global Business Academy Valley High School	Santa Ana Unified School District Santa Ana, CA	California Partnership Academy 1991-92
8.	Watsonville Video Academy Watsonville High School	Pajaro Valley Unified School District Watsonville, CA	California Partnership Academy 1991-92
9.	Electronics Academy (SC) Silver Creek High School	East Side Union High School District San Jose, CA	California Partnership Academy 1984-85
10.	Electronics Academy (I) Independence High School	East Side Union High School District San Jose, CA	California Partnership Academy 1984-85

and tourism, and video technology. The participating programs were drawn from most of the major, established networks of Career Academies across the country, with four from the California Partnership Academy network, two from the National Academy Foundation network, one from the Florida network of Academies for Career Development and Applied Technology, and one from the network of Academy programs created by the District of Columbia Public Schools. Two of the participating Academies were developed independently through local high school or district initiatives. Figure ES-1 also shows that, as of the 1994-95 school year, the participating Career Academy programs had been in operation for as few as two years and as many as 10 years.

Most of the nine school districts in the evaluation (one district includes two of the participating Career Academies) are large and enroll substantial percentages of African-American and Hispanic students as compared to national averages. The participating school districts also have higher dropout rates, unemployment rates, and percentages of low-income families. Most Career Academies across the country are located in such districts, and MDRC purposely sought such sites for the Career Academies Evaluation.

Principal Findings in This Report

- **Each of the 10 participating high schools implemented and sustained the defining structural elements of the Career Academy approach.**

MDRC's field research provided substantial evidence that the participating sites have both attained and sustained over time a threshold set of conditions that distinguish them as Career Academies and differentiate them from the rest of the large comprehensive high schools in which they operate. Although identifying such Career Academies was an important goal of the site selection process for the evaluation, this finding is also significant for policymakers and practitioners interested in the Career Academy approach. The implementation and ongoing operation of the Academies has required the effort and commitment of the many teachers, administrators, employers, and students involved with the programs. The commonalities among the participating sites allow the aggregation of findings across Career Academies and their use to inform policy and practice related to the Career Academy approach in general.

The structural dimensions of the Career Academy approach may be viewed as important prerequisites for improving academic and occupational outcomes for students. They may also be significant in the way they reflect policies and administrative decisions about the allocation and organization of resources. To be effective, however, these structural changes must contribute to improvements in the quality of supportive relationships among teachers and students, in methods of instruction, and in how students learn in school and in workplaces. Future reports will examine the extent to which the structural features of the Career Academies result in deeper changes in teaching and learning opportunities and, ultimately, in improved academic and occupational outcomes for students.

- **The variation among the participating Career Academies highlights the adaptability of the Academy approach to local needs, capacities, and circumstances. Such variation indicates the potential for the Career Academy approach to be disseminated more widely.**

Although the Career Academy approach is defined by specific changes in the structure of high

schools, it is essentially flexible and adaptable, rather than rigid and prescriptive. Each of the 10 high schools in the evaluation has modified the Academy approach in some respects while adhering to its basic principles and defining elements. Variations among the Career Academies were observed in the following areas:

- the number of students and teachers in the program;
- the number and content of courses that students are scheduled to take within the Academy;
- the opportunities for collaboration among Academy teachers, including the regularity and content of the teacher team meetings and the extent of teachers' non-Academy commitments;
- the teaching and administrative responsibilities of the lead teacher or director;
- the degree of vocational and academic curriculum integration;
- the specific links between work-based and school-based learning activities; and
- the role and scope of involvement by employer partners.

Table ES-2 displays some of the ways in which the 10 participating Career Academies differ. It shows that Academies with larger numbers of teachers and those that include grades 9 through 12 accommodate more students and cover more courses within the Academies. The larger teaching staff, however, also makes it difficult to schedule shared planning time and to coordinate curriculum content and activities across classes. Career Academies with fewer teachers tend to be somewhat smaller, and the students in the programs tend to take more courses outside the Academies. At the same time, the smaller teaching team makes it somewhat easier to schedule shared planning time and consecutive Academy classes.

The table also indicates that most of the Career Academies in the evaluation provide students with work-based learning opportunities during the summer, and that some continue to offer students this opportunity in the 12th grade year. Three of the programs offer students work-based internships as early as the 10th grade. In all but one of the Academies, students are paid for their work; in eight of the programs, students receive school credit for their work. Although not shown in the table, all of the Academies use classroom-based activities to teach employability skills such as résumé-writing, interviewing, and working effectively under supervision. Some of the programs have developed particular activities, such as keeping journals or writing job evaluations, that integrate classroom- and work-based learning.

Involving local employers in Career Academies requires a substantial commitment of time and energy from both school staff and business partners. As shown in the table, most of the participating Career Academies coordinate employer involvement through an employer advisory board and through the efforts of a teacher or administrator who serves as the primary liaison between the program and the employer partners. Employers play a variety of roles: providing advice on curriculum development; speaking in classes or at student functions; hosting student field trips; serving as a source of adult mentors for students; and providing additional resources.

The adaptations revealed by MDRC's field research reflect the Academies' local circumstances and capacities. They do not necessarily reflect relative strengths or weaknesses of one approach over another -- at this stage in the evaluation, it is premature to make such judgments. However, these

Table ES-2
Career Academies Evaluation
Selected Characteristics of the Career Academies as of the 1994-95 School Year

Characteristic	Academy for Aerospace Technology, Cocoa, FL	Academy of Finance, Baltimore, MD	Academy of Travel and Tourism, Miami Beach, FL	Business and Finance Academy, Pittsburgh, PA	Electronics Academy (I), San Jose, CA	Electronics Academy (SC), San Jose, CA	Global Business Academy, Santa Ana, CA	Health Professions Academy, Socorro, TX	Public Service Academy, Washington, D.C.	Watsonville Video Academy, Watsonville, CA
Grade level of students	10-12	9-12	10-12	10-12	10-12	10-12	10-12	9-12	10-12	10-12
Number of students enrolled in 1994-95 school year[a]	134	190	130	150	105	96	152	180	124	130
Total number of Academy teachers[b]	8	13	7	7	4	4	6	11	9	6
Teachers have a shared planning period during the school day	yes	no	no	no	yes	yes	yes	no	no	yes
Frequency of formal staff meetings	daily	monthly	quarterly	monthly	bi-weekly	bi-weekly	weekly	weekly	weekly	bi-weekly
Total number of classes scheduled within the Career Academy[c]	14	13	12	10	12	9	11	22	16	10
Subject areas of Career Academy courses	Social Studies Science English Math Aerospace Technology	Social Studies Science English Computers & Finance	Social Studies Science English Travel & Tourism	Social Studies English Business & Finance	Science English Math Electronics	Science English Math Electronics	Social Studies English Math Business & Computers	Social Studies Science English Math Health Occupations	Social Studies Science English Math Business & Government	Social Studies English Math Video Academy
When work activities typically occur[d]	10th, 11th, and 12th grades	summer after 11th grade	summer after 11th grade, 12th grade	summer after 11th grade	summer after 11th grade	summer after 11th grade	summer after 10th or 11th grade	11th and 12th grades	summer after 11th and 12th grades	summer after 10th or 11th, grade, 12th grade
Students are paid for work experience	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
Students receive school credit for work experience	yes	no	yes	no	yes	yes	yes	yes	yes	yes
Academy has a non-teaching coordinator responsible for employer involvement	yes	yes	yes	no	yes	yes	no	no	yes	yes
Academy has an employer advisory board	yes	yes	yes	yes	yes	yes	no	yes	yes	yes

Notes: [a]Includes students in all grade levels of the Academy.

[b]Includes teachers who have only Career Academy responsibilities and teachers who have both Academy and non-Academy responsibilities.

[c]Includes all classes offered within the Career Academy across all grades.

[d]Work activities include experiences such as paid and unpaid internships and community service. Activities such as mentorships, job shadowing, and field trips are not included.

BEST COPY AVAILABLE

adaptations can be used to test hypotheses about how variation in the basic structures of the Career Academy approach might promote different opportunities for teaching and learning and, ultimately, produce different outcomes for students. Subsequent reports from the Career Academies Evaluation will examine the relationship between the programs' characteristics and their effectiveness.

- **The Career Academies in this evaluation have demonstrated their capacity to attract large numbers of appropriate applicants and to include students with a wide range of demographic and educational characteristics. The appeal of the Academies has extended to students who may be at risk of failing academically or of dropping out of high school, and to students who have done well in school.**

The growth of the Career Academy movement has been accompanied by questions about whether the programs can and should serve a broad range of students and about which students benefit most from participation in them. The original Philadelphia and California Partnership Academies, which were designed as dropout prevention programs, explicitly targeted students who appeared to be at high risk of dropping out of school. In recent years, the original programs and many newer Academies have sought to include a broader mix of students. One reason for this shift is the stigma associated with serving only low-achieving students and the perception that Career Academies did not provide students with a pathway to college. Another reason is a continued increase in labor market demand for highly skilled workers, which has prompted the Academies to place even greater emphasis on preparation for post-secondary training and college. A third reason is that as resources for Career Academies (from both public and private sources) have been considered for cuts, Academies have come under increasing pressure to demonstrate broad appeal and to show positive results. One response has been for the Academies to market the programs more aggressively to students who are likely to succeed in high school and to go on to college. Including a broader mix of students helps to dispel the perception that the programs are only for "low track students," to build school-wide support by showing that an Academy is appropriate for all students, and to promote mutual support among high- and low-achieving students.

To accomplish the goal of enrolling a broad range of students, each of the Career Academies in this evaluation designed and implemented new marketing and recruitment strategies. These efforts expanded the number of students who expressed an interest in and applied to the programs: On average, the participating programs recruited approximately twice as many applicants as they were able to serve.

Table ES-3 lists selected background characteristics of the students who applied to the Academies in this evaluation, and indicates that they are from diverse family and educational backgrounds. Many of the students are from ethnic or racial minority backgrounds, and there is a wide range of demographic characteristics. The percentage of families receiving public assistance (a proxy for low income) also varies.

The table also indicates that the Career Academies attract students who appear to be at some risk of dropping out or performing poorly in high school, as well as those who reported they were performing well in their classes and believe they will graduate and go on to college. In all, 36 percent of the students had two or more characteristics identified as predictive of dropping out of high school. An important question for this evaluation is whether the Academies keep such students on the road to success in school and work.

Table ES-3

Career Academies Evaluation

Selected Characteristics of Students in the Research Sample at the Time They Entered the Study

Characteristic	Full Sample	Academy for Aerospace Technology, Cocoa, FL	Academy of Finance, Baltimore, MD	Academy of Travel and Tourism, Miami Beach, FL	Business and Finance Academy, Pittsburgh, PA	Electronics Academy (I), San Jose, CA	Electronics Academy (SC), San Jose, CA	Global Business Academy, Santa Ana, CA	Health Professions Academy, Socorro, TX	Public Service Academy, Washington, D.C.	Watsonville Video Academy, Watsonville, CA
Gender											
Male	44.4 %	52.4 %	37.9 %	39.4 %	62.1 %	53.3 %	58.6 %	44.5 %	30.7 %	36.7 %	48.5 %
Female	55.6	47.6	62.1	60.6	37.9	46.7	41.4	55.5	69.4	63.3	51.5
Race/ethnicity											
Black	30.2	29.0	97.3	26.0	100.0	4.3	11.3	3.9	0.0	96.6	0.0
White	9.9	62.9	1.2	9.3	0.0	9.4	13.1	0.7	2.1	0.0	14.6
Hispanic	53.1	4.8	1.2	62.5	0.0	50.4	43.1	90.8	97.4	1.7	82.6
Asian	6.1	1.6	0.0	1.3	0.0	35.9	31.3	4.6	0.0	0.0	2.1
Native American	0.7	1.6	0.4	1.0	0.0	0.0	1.3	0.0	0.5	1.7	0.7
Family on public assistance											
Family receiving welfare	15.1	10.9	19.7	12.2	29.1	18.7	15.7	8.4	11.3	33.0	12.2
Family receiving food stamps	19.6	10.1	25.3	16.9	28.6	16.1	13.3	11.5	38.8	34.6	13.0
Family composition											
Two-parent household	61.5	64.5	40.9	47.4	35.5	72.3	70.7	79.7	82.5	25.0	72.1
Single-parent household	33.3	30.7	47.6	46.8	61.3	26.9	23.4	17.4	14.4	69.0	23.3
Student lives with other relatives	5.2	4.8	11.4	5.8	3.2	0.8	6.0	2.9	3.1	6.0	4.6
English grades since the 6th grade											
Mostly As and Bs	61.2	53.6	64.2	59.6	40.9	45.8	51.3	63.0	87.7	63.6	59.4
Mostly Cs and Ds	38.8	46.4	35.7	40.4	59.1	54.1	48.8	37.0	12.3	36.5	40.6
Math grades since the 6th grade											
Mostly As	53.2	40.8	57.3	54.6	38.5	40.9	47.0	47.7	74.1	51.7	57.6
Mostly Bs	46.7	59.2	42.6	45.4	61.6	59.2	53.0	52.3	25.9	48.3	42.4
Students' future expectations											
Plans to graduate from high school	99.7	100.0	99.6	100.0	98.5	100.0	100.0	99.3	100.0	100.0	99.3
Plans to graduate from college	64.9	61.9	66.9	74.4	49.2	47.5	71.4	53.9	74.9	63.0	65.9
Plans to have a professional career at age 30	32.0	21.9	42.3	44.0	26.8	20.9	20.2	22.3	52.9	31.5	22.1
Percent with two or more risk factors[a]	35.8	22.2	39.7	41.8	40.0	26.7	24.3	39.4	34.7	49.2	33.1
Sample size	1,953	126	261	312	66	120	169	283	199	120	297

Source: MDRC calculations from the Career Academies Student Baseline Questionnaire.

Note: [a]The six indicators included as risk characteristics for school failure are: living in a single-parent household, living in a low-income household, student speaks limited English, home alone at least three hours per day, has a sibling who dropped out of high school, and neither parent has a high school diploma. These indicators were identified as risk factors by the National Center for Education Statistics using data from the National Educational Longitudinal Study of 1988 (NELS:88), which surveyed a national sample of 8th graders.

- **In all, 84 percent of the students who were selected to participate in the Career Academies enrolled in the programs. Of those who enrolled, 73 percent were still enrolled two years later.**

An essential feature of the Career Academies is their voluntary nature. Students apply for and enroll in them by choice; they are not assigned or required to participate in them. By making a choice to apply to an Academy, students are presumably more likely to have at least a modest level of motivation to engage in an alternative education program and to do well. At the same time, however, students may encounter several factors that push them toward or pull them away from enrolling in a special program like a Career Academy. For example, because the Career Academy recruitment and application process begins in the spring semester prior to enrollment, students are asked to make plans for the following school year up to nine months ahead of time. During that interval, students may be affected by their friends' choices of high school programs, or they may lose interest in a Career Academy as they learn about other options available within their school or district.

Various factors also affect enrolled students' ongoing participation in the Career Academies. Students' peers may value or devalue school in general and the academic rigor and career focus espoused by the Academies in particular. Teachers can engage or alienate students. Families move, requiring their children to transfer to new schools. As a result of these and other experiences, not all students selected for the Career Academies actually enroll in the programs at the start of the school year, and others leave the programs during high school.

Table ES-4 shows the enrollment rates for the first seven sites to enter the evaluation, which have a year or more of follow-up information on students in the research sample. The table shows that 84 percent of the students selected in the spring actually enrolled in the Career Academies the following year (usually at the start of the school year following their selection). The rates ranged from over 90 percent at the Electronics Academy at Independence High School (San Jose) and the Health Professions Academy (Socorro) to 69 percent at the Business and Finance Academy (Baltimore). Table ES-4 also reports the programs' rate of continued enrollment, showing that 73 percent of the students who enrolled in the seven Career Academies were still participating in the programs two years later. This rate ranged from 85 percent at the Electronics Academy at Silver Creek High School (San Jose) to 68 percent at the Health Professions Academy (Socorro) and the Watsonville Video Academy. Most of the students who did not enroll in the Academies or who enrolled but left were enrolled either elsewhere in the high school in which the Career Academies were located or in another high school within the district.

The participation rates in Table ES-4 represent one measure of the extent to which the Career Academies attract and retain the students who apply and are selected for the programs. The findings also raise questions about what happens to students who leave the programs. In this evaluation, the participation rates provide a direct measure of the "amount" of the Career Academy experience that each student receives.

- **Compared to other teachers in the participating high schools, Career Academy teachers reported having more opportunities to collaborate with each other, were more likely to perceive their working relationships and environment as a learning community, and were more likely to develop personalized relationships with their students.**

Table ES-4

Career Academies Evaluation

Rates of Enrollment in the Career Academies Among Program Group Students

Enrollment Status	Full Sample	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Watsonville Video Academy Watsonville, CA
All program group students[a]								
Enrolled in the first year following random assignment[b]	84.2 %	69.4 %	80.0 %	92.4 %	82.8 %	88.8 %	91.6 %	86.1 %
Sample size	703	98	115	66	93	116	107	108
Program group students who enrolled in a Career Academy[c]								
Enrolled at the end of the second year following random assignment[d]	72.9 %	71.9 %	75.0 %	72.4 %	84.6 %	72.5 %	68.0 %	68.1 %
Sample size	292	32	44	29	39	51	50	47

Source: MDRC calculations from Career Academies student enrollment data collected through the 1994-95 school year.

Notes: [a] This sample includes students who were randomly assigned to the program group in 1993 and 1994 from the first seven sites to join the study.

[b] "Enrolled in the first year" includes all program group students who enrolled in the Career Academy during the first or second semester following random assignment.

[c] This sample includes all students from the first seven sites to join the study who were randomly assigned to the program group in 1993.

[d] "Enrolled at the end of the second year" includes all program group students who enrolled in the Career Academy during the fourth semester following random assignment.

A key question for the Career Academies is whether their results are due to special characteristics of their teachers or to the work environment they offer for typical high school teachers. The answer to this question will shed light on the extent to which the Career Academy approach can be adapted to a broad range of circumstances and implemented by a broad range of teachers or whether it is heavily dependent on attracting certain types of teachers.

If Career Academy teachers were exceptional in significant ways, the approach would be limited in its capacity to serve a large proportion of high school students. This evaluation found, however, that Career Academy teachers were similar to their colleagues in the same high schools on a range of measured background characteristics. The primary differences between Academy teachers and their non-Academy colleagues in the same high schools were in their perceptions of their work environment; thus, Academy teachers do not appear to be distinctive in terms of their background characteristics and prior teaching experience. Instead, the Career Academy teachers appear to be shaped by their distinctive working conditions. For example, the Career Academies provide teachers with shared planning time and with extended exposure to a core group of students within and across school years. Interviews and survey data show that Career Academy teachers are more likely than their non-Academy colleagues to perceive their school environment as a professional learning community and to have developed closer relationships with students. Substantial evidence from previous research indicates that such changes affect the quality of teaching and learning for students and for teachers. Subsequent reports will explore the connections between teachers' perceptions of their work environment and the experiences and outcomes of their students.

Next Steps for the Career Academies Evaluation

The current report provides an overview of the basic foundation of the Career Academies Evaluation. It describes the 10 participating Career Academies and draws the conclusion that each has implemented and sustained the defining structural elements of the Career Academy approach and has distinguished itself from the alternatives available to students in the comprehensive high school in which it operates. The report also describes the students who applied to the Career Academies and will constitute the evaluation's program and control groups. Finally, the report provides some preliminary insights into the ways that teachers utilize the Career Academies and how Academy and non-Academy teachers perceive their work environment differently. In summary, the evaluation has established the basic framework for a rigorous and credible assessment of the Career Academy approach and its effect on students' high school performance and preparation for further education and employment.

Having established this foundation, MDRC is continuing the data collection and analyses that will be the basis of the project's primary reports and papers for policymakers, practitioners, and researchers over the next three years. The first of these will focus on results from a survey of students in the program and control groups at the end of the first or second year following their entry into the evaluation. Other reports will provide further information from the Teacher Questionnaire and an update on the operation of the participating Career Academies and patterns of student enrollment. Using data collected from school records, MDRC also plans to report on the impact the Academies have had on students' engagement and performance. Another report will discuss results from a survey administered to students in their 12th grade year. Finally, MDRC will begin work on the second phase of the evaluation, which will follow students beyond their high school years. This will begin with the administration of a survey to students at the end of the first year after they are scheduled to graduate from high school.

CHAPTER 1

INTRODUCTION

The American high school took its current form at the end of nineteenth century. From then till now, a continuous stream of reform initiatives has attempted to restructure the high school and improve its capacity to help students make successful transitions from adolescence to adulthood and from school to work. As we near the end of the twentieth century, the pace and scope of this movement have accelerated. In 1991, the Secretary of Labor's Commission on Achieving Necessary Skills (SCANS) estimated that fewer than half of U.S. youth were acquiring the skills and knowledge required for meaningful and productive work. The SCANS report, along with others from researchers and blue-ribbon panels, heightened the call from policymakers, educators, and the business community for innovative school-to-work reforms. At the heart of these reforms is a commitment to helping high school students achieve academically, while providing them with marketable skills, work-based learning experiences, and clearer pathways to productive employment.

One of the best-established and most promising school-to-work initiatives is the Career Academy, a multi-faceted approach to restructuring high schools, supporting students' academic success, and opening opportunities for further education and work. Academies are "schools-within-schools" in which groups of students (usually 30 to 60 per grade in grades 9 through 12 or 10 through 12) take several classes per year with one group of teachers. The Academies are focused on a career theme, such as health care, finance, or electronics, which is usually determined by local employment opportunities and evidence of growing demand for such expertise in the marketplace. Career Academies' curricula consist of traditional academic classes (such as math, English, science, and social studies) combined with occupation-related classes that focus on the particular career area. Local employers from that field help plan and guide the program, and they act as mentors and job supervisors for the students. Many Academies receive supplementary financial or in-kind support from states, districts, or employer partners. As will be discussed later in this report, individual Career Academies differ in specific dimensions of these components, including the number and roles of students, teachers, and employers, as well as in the particular content of classes and work-related learning activities.

The Career Academy approach is particularly appealing because its structure is designed to address directly some of the fundamental problems that have been identified in many large comprehensive high schools. The school-within-a-school organization is designed to provide a personalized learning environment; the curriculum is designed to link academic and occupation-oriented classes, not only to provide students with college prerequisites, but to teach them real-world, marketable skills; and employer partnerships are designed to expose students to a wide range of occupations within a particular field and to broaden and illuminate pathways to successful careers.

The Career Academy approach is also of special interest because most of the more than 300 Academies currently operating across the country are located in large high schools that serve high numbers of students at risk of poor performance or dropping out of school. Such high schools have been criticized because they often track students into courses that do not keep them engaged and in school, perpetuate low expectations for their success, or set them on pathways that lead to low-end jobs rather than to college or a long-term career. Career Academies are seen as promising interventions that can improve students' engagement and performance in high school, increase both the rigor and the

relevance of their education, and broaden their opportunities beyond high school. Past evaluations of Academies provide encouraging evidence that they improve students' attendance, grades, and course completion rate.

In 1992, the Manpower Demonstration Research Corporation (MDRC) began development work for a unique study of the Career Academy approach. During the ensuing four years, it has laid the groundwork for a rigorous and credible assessment of the extent to which the Career Academy approach improves students' advancement to post-secondary education and employment above and beyond what would have occurred had they not had an opportunity to participate in the programs. The study is being supported by a consortium of funders, including the U.S. Departments of Education and Labor and 14 private foundations: the DeWitt Wallace-Reader's Digest Fund, Ford Foundation, Commonwealth Fund, William T. Grant Foundation, Pew Charitable Trusts, Rockefeller Foundation, George Gund Foundation, Grable Foundation, Richard King Mellon Foundation, American Express Foundation, Alcoa Foundation, Russell Sage Foundation, Westinghouse Foundation, and Bristol-Myers Squibb Foundation.

The evaluation includes 10 mature Career Academies, which are located in a diverse set of urban and small-city high schools that serve high proportions of low-income students, students of color, and students with limited English proficiency. The high schools were selected to participate in the study because they provided an opportunity for a credible test of the Career Academy approach. Each had established the basic Career Academy components mentioned above: a school-within-a-school organization; an integrated academic/occupational curriculum; and employer partnerships. This combination of features was not available elsewhere in the high schools. Each Career Academy attempted to serve a wide range a students, including those who appeared to be at risk of dropping out. The key stakeholders in the school system — the school principal and other administrators, teachers, and school district officials — agreed to participate in the study and to cooperate with the requirements of the research design.

The research sample includes nearly 2,000 students in the 10 selected Academies. Working closely with the participating sites, MDRC has established data collection procedures to obtain a broad range of qualitative and quantitative information about the students, the Career Academies, and their local contexts in an attempt to understand the behavior of those eligible for Career Academies. To determine how students would have behaved in the absence of Career Academies, MDRC has implemented a random assignment evaluation study. Each individual in a voluntary sample of students in high schools that meet the Academies' selection criteria (discussed in Chapter 4) was randomly assigned to one of two groups: a "program group" or a "control group." Those assigned to the program group were eligible to participate in Career Academies, while those assigned to the control group were not eligible to participate. Since program and control group members were randomly drawn from the same population of students, the two groups — on average — do not differ systematically with regard to any pre-existing characteristics. Thus, differences between the two groups in education and employment-related outcomes can be attributed to the program.

This first report on the Career Academies Evaluation is primarily descriptive, and includes several important preliminary findings with implications for both the evaluation and for policy and practice related to the Career Academies and other school-to-work approaches. Later reports will include additional analyses of how the Career Academies operate and will examine students' and teachers' experiences in the Academy and non-Academy environments. These reports will also include

findings on the extent to which the Career Academies actually improve education and work-related outcomes for students.

Because very few of the students in the sample have entered the work-based stages of the Career Academy programs or graduated from high school and entered post-secondary education or employment, the primary emphasis of the research effort to date has been on learning about the high school-based components of the participating Career Academies. As a result, this report provides more detailed information on the school-within-a-school and integrated curriculum aspects of the Academies than it does on the employer partnerships and other work-based features. Later reports will include more information about the Academy employer partnerships and students' work experiences.

The remainder of this chapter provides a brief description of the Career Academy approach and explores why it has attracted the attention of both education reformers and proponents of the school-to-work movement. It also presents an overview of the research design and describes several aspects of the current policy environment that make this study particularly timely. The final section provides a brief overview of the remaining chapters.

I. Structural Problems in High Schools

The American high school has been charged with the major responsibility of helping adolescents make two crucial and related transitions into the adult world: from parental guardianship to independence and from school to post-secondary education and work.[1] High schools have attempted to facilitate the transition to independence by providing a relatively secure environment for adolescents to mature intellectually, socially, physically, politically, psychologically, and emotionally. They have attempted to facilitate the second type of transition by creating pathways for students to attain the skills and other prerequisites needed for pursuing further education and a career. The importance of succeeding in high school is profound: At a minimum, a high school diploma sends a concrete signal to the adult world that an adolescent has learned valued skills and behaviors, such as consistent attendance, completing a set of required tasks, and cooperating with other people. High school graduation represents the achievement of competencies in key skills, including the use of texts, numbers, and other information needed for contemporary citizenship. The diploma, along with an adequate level of performance, is also a prerequisite for college and the better-paid and higher-status occupations.

Unfortunately, several structural features of many high schools have undermined their capacity to help students successfully make these transitions. The large size of comprehensive high schools, for instance, often depersonalizes the school environment, preventing teachers from working as teams and developing an atmosphere conducive to learning.[2] In many large high schools, teachers rarely share the same group of students with the same group of colleagues, and students often have different classmates in each course. This flux in classroom composition and student peer groups promotes anonymity and diminishes any sense of community. Students do not have a consistent group of teachers who are accountable for their success, and teachers do not have a chance to coordinate their coursework.

---

[1]Grubb and Lazerson, 1975; Lazerson and Grubb, 1974.

[2]Sizer, 1984; Hill, Foster, and Gendler, 1990; Powell, Cohen, and Farrar, 1985.

Another common problem is the curriculum, which is usually separated into higher-level academic classes for college-bound students and lower-level academic and vocational classes for those presumed not to be college-bound. This separation often confines the teaching and learning process to the transfer of abstract knowledge from teachers to students or, in the case of vocational classes, to a narrow focus on specific job skills. There are usually very few opportunities to explore how basic skills, such as those learned in math or English, are actually applied outside the classroom.[3]

A third common problem is the high school's separation from other institutions and businesses in the community, which often serves to isolate students from the world of work rather than providing them with meaningful exposure to it.[4] With few connections among classes or between school and work, many students are inadequately informed about or prepared for post-secondary education and employment opportunities.

To varying degrees, these problematic structural features are present in many high schools; however, they are much more prevalent in urban school districts that serve large numbers of low-income students, students of color, and students with limited English proficiency.[5] Students in these high schools are more likely to drop out; if they do graduate, they often lack the necessary skills and coursework to attend college and start on the pathway toward high-wage jobs.[6] These structural features within the schools also parallel and perpetuate class, racial, and ethnic differences in education and employment outcomes for students.

II. How the Career Academy Approach Responds

The Career Academy approach has particular appeal because it offers a direct response to the common structural problems described above through the school-within-a-school organization, the integrated academic/occupational curriculum, and the employer partnerships.

Figure 1.1 is a simplified conceptual framework showing the pathways through which these changes in the structure of high schools are intended to alter students' and teachers' school experiences and, ultimately, to improve students' academic, behavioral, and work-related outcomes. (Double-headed arrows represent the mutually reinforcing character of certain elements of the model.) This conceptual framework delineates the theory underlying the Career Academy approach and was used to guide MDRC's selection of sites for the study, the design of the study, and the development of data collection instruments and analysis strategies.

The first column of Figure 1.1 shows the three key structural elements of the Academy, which are described in more detail below.

- **The school-within-a-school.** In this organizational arrangement, clusters of students share several classes each day and often have the same small group of teachers from year to year. The student clusters vary in size, but usually range from 30 to 60 students per grade in grades 9 through 12 or grades 10 through

---

[3]Resnick, 1987a; Raizen, 1989; Stasz et al., 1993; Grubb, 1995.

[4]Resnick, 1987b; Berryman and Bailey, 1992; Berryman, 1995.

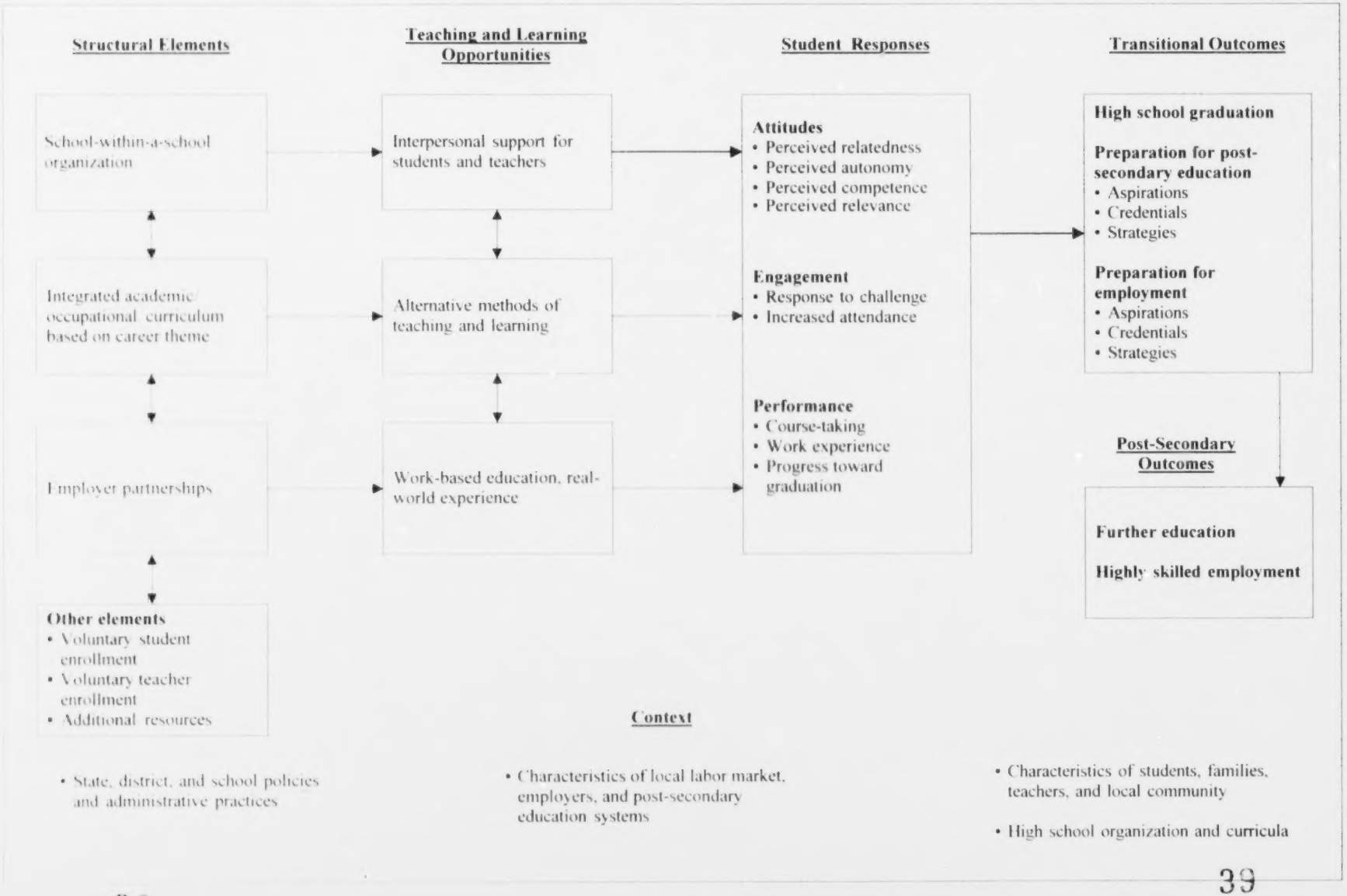
[5]Wehladge et al., 1989; Louis and Miles, 1990.

[6]Natriello, 1987; William T. Grant Foundation Commission on Work, Family, and Citizenship, 1988; Roderick, 1993.

Figure 1.1

Career Academies Evaluation

Simplified Model of the Career Academy Approach



12. The number of classes students take within an Academy, and thus the number of teachers they share, also varies from Academy to Academy and from year to year, but usually ranges from two to seven. Teachers, who come from a variety of academic and vocational disciplines, are scheduled to have mostly Academy students in their classes. These teachers make a commitment to meeting with each other on a regular basis, and they share in decision-making related to administrative policies, curriculum content, and instruction. One teacher usually assumes lead responsibility for administrative tasks and serves as a liaison with the school principal and other administrators, school district officials, and employer partners. Students also take some regular classes along with the other students in the high school, and all courses in the Academy are counted as credits toward a high school diploma. Academy classes are often scheduled in blocks of three or four during the morning, leaving the remainder of the day for regular courses. This block scheduling allows for special activities during this time: field trips, for instance, or team teaching, or listening to speakers from the business community. Teachers also attempt to involve parents in the Academy program, and schools often require parents to attend meetings with their children.

- **The integrated academic/occupational curriculum.** The Career Academies curricula usually consist of three or more academic courses per year, and at least one occupation-related course per year that focuses on the selected career theme. These classes enable students to meet high school graduation and college entrance requirements and, at the same time, provide them with marketable skills. Students take their remaining course requirements and electives (usually 20 to 50 percent of the credits needed to graduate) outside the Career Academy in the regular high school. To link the academic and occupational classes, Academy teachers work together to coordinate course content and instructional strategies. They also focus on providing instruction in employability skills in both the occupational theme courses and in one or more academic courses. The Career Academy curriculum also includes internships, sponsored by the employer partners, that sometimes count as credits toward graduation.

  Occupational classes are structured around whole industries: Health Academies, for example, attempt to expose students to diverse medical occupations in the areas of direct care, technology, and administration. As mentioned earlier, the high schools' theme industry is chosen on the basis of local employment needs and demand for expertise in the national marketplace.

- **Employer partnerships**. Local businesspeople help motivate students by providing work experience that shows how their education fits into the real world. Summer internships and jobs during the school year also teach students practical skills, inculcate proper workplace behavior, and illuminate pathways to careers within the schools' theme occupation. Local employers also act as advisors to Academy staff, and they serve on an advisory board with representatives from the Career Academy and the school district. This board steers the Academy's development and establishes some of its policies and

procedures, and it provides a forum for the employers and school representatives to discuss strategies for combining classroom- and work-based learning activities.

The number of employer partners participating in a Career Academy can vary from as few as three or four to as many as 40. Employers are usually recruited for the Academies by teachers or administrators from the school district, although, in some cases, employers assume the initiative to help start a new Academy. The employer partnerships are usually sustained and coordinated by a teacher or administrator who is directly involved with the Career Academy and who serves as the liaison between employers, the Career Academy, and the school district.

Finally, the Career Academy approach involves three other structural elements (shown in the fourth box of the first column of Figure 1.1) that may enhance the influence of the Academy approach's school-within-a-school, integrated curriculum, and employer partnership components. The first of these elements is voluntary enrollment in the Academies by students and teachers. Students enter the Academies by choice after a formal application and selection process (described in detail in Chapter 4). By choosing to enroll in an Academy, students are presumed to be committed to meeting the program's expectation and demands. Teachers, who also volunteer to be part of an Academy, commit extra time for the administration of the program and for collaborating with Academy colleagues. Finally, some Career Academies benefit from additional state or local funding that may be used to provide more planning periods for teachers, administrative support, smaller classes, or supplies and equipment.

These structural elements should be viewed as institutional mechanisms designed to facilitate changes in the teaching and learning opportunities available to students and teachers. The second column of Figure 1.1 lists three types of opportunities that the Academies' structural elements are designed to influence: (1) enhanced interpersonal support through the intensive interaction and collaboration offered by the school-within-a-school; (2) alternative methods of teaching and learning through the integration of academic and occupational curricula; and (3) work-based education through the employer partnerships. As shown in the figure, these opportunities are mutually reinforcing and, together, they are intended to affect students' attitudes, engagement, and performance during their high school years (see the third column of Figure 1.1).

Youth development and educational research suggest that schools-within-schools, the first structural component of Career Academies, should help strengthen the classroom environment and thus improve students' engagement in school. In addition, keeping smaller groups of classmates and teachers together for three or four years should provide the basis for building more stable and supportive relationships between the two groups.[7] The second component, changes in school curricula to combine both academic and occupational instruction, is consistent with recommendations from the National Assessment of Educational Progress that include "increasing the use of 'hands-on' examples and placing more problems in real-world contexts to help students construct useful meanings for abstract concepts."[8] The third component, the Academies' business partnerships, is designed to foster students' sense of how new skills can help them gain productive employment by exposing them to the work world and providing them with mentors.[9]

---

[7]Pauly, 1991; Connell, Aber, and Walker, 1995.

[8]Mullis, Owen, and Phillips, 1990.

[9]Zeldin, 1995.

Finally, the Academies seek to increase the rates at which students graduate from high school and to provide them with the necessary credentials and strategies to enter post-secondary education and employment (see the fourth column of Figure 1.1). As shown in the figure, however, graduating from high school and acquiring various credentials should be viewed as transitional outcomes — as indications of students' level of preparedness for future education and work after high school. Ultimately, the Career Academies are intended to lead to higher levels of post-secondary education and to higher-skilled and higher-paying careers.

Figure 1.1 also shows the local context within which the Career Academies (as well as all other high school programs) operate. This context, which shapes the ways the Career Academy approach has been adapted and sustained over time, encompasses the policies and administrative practices of the state, school district, and host high school, including funding and school finance structures; characteristics of the local labor market, employers, and post-secondary education systems; characteristics of the students, families, teachers, and local community; and the existing organizational structure and curricula of high schools.

Although this conceptual framework may appear fairly specific, the Career Academy approach is essentially flexible and adaptable to many circumstances. As the Academies in this study clearly demonstrate, schools can vary dramatically from each other and still contain the three basic structural elements. In response to local conditions and needs, each Academy modifies, revises, and places different levels of emphasis on different aspects of the approach.

Although Career Academies are unique in their combination of structural components, the approach incorporates facets of other well-established school-to-work transition reform efforts. Following are some of the well-known alternative programs and their characteristics.[10]

- **Youth apprenticeships and cooperative education.** Like Career Academies, these high school programs use the workplace as a learning environment to teach students technical skills. Students "learn by doing" in paid employment and training, and through some classroom vocational education and related academic courses. In contrast, Career Academies put more focus on academic classes. Academies also educate students about entire occupational fields, such as health care, rather than specific jobs within industries, such as medical technician work. The Academies also allow the enrollment of more students than a single youth apprenticeship or cooperative education program can serve.

- **Cluster programs**. These are typically large-scale efforts that offer all students in a high school a choice among several career pathways, each based on a sequence of courses tied to a cluster of occupations (such as environment- or service-related industries or manufacturing and engineering occupations). Students receive training in broad, work-related skills after taking introductory career exploration courses, and they may take several classes within their cluster each year. These clusters resemble Career Academies' school-within-a-school organization, but more students are usually enrolled in a cluster than an Academy, reducing the Academies' peer- and teacher-support system benefits.

---

[10]For further details about school-to-work reform efforts, see Pauly, Kopp, and Haimson, 1995, and Stern et al., 1994.

Career Academies also focus more on work-based internships that expose students to occupations in the theme industry.

- **Traditional vocational education and career education.** These programs typically provide students with specific job skills training in classroom settings, and may offer career education programs focused on generic employability skills and career exploration. In recent years, these programs, like Career Academies, have been restructured to provide earlier and broader opportunities to learn about varied careers, to offer career exploration through visits to workplaces, and to integrate occupational and academic courses. However, vocational education programs are criticized for narrowing secondary education and career opportunities for students. Career Academies are designed to overcome the stigma attached to traditional vocational education programs by including more academic classes, placing more emphasis on preparation for college, providing extra support for students through the school-within-a-school structure, and emphasizing preparation for broad career fields instead of specific jobs.

- **Technical preparation (tech prep) programs.** The goal of these programs is to prepare students for post-secondary technical training programs by aligning their high school courses with community college requirements. Students can receive credit toward an associate's degree based on the tech prep classes they take during high school. These courses usually emphasize technology-related instruction in science and math and provide workplace-simulated environments in the classroom. In contrast, Career Academies provide more opportunities for work-based learning (although tech prep programs have also begun offering this), and they do not usually offer courses that bridge high school and community college.

III. The Policy Context

Since the 1980s, state and federal policymakers have come to recognize that many students in the United States need help making the transition from high school to post-secondary education and to meaningful, productive, high-skilled work. The National Center for Education and the Economy's Commission on the Skills of the American Workforce concluded in 1990 that "workers are ill-equipped to meet employers' current needs and ill-prepared for the rapidly approaching high technology, service-oriented future," and that schools do not provide most students with an education that will be enable them to succeed in high-performance corporate and institutional organizations. High-profile reports from the U.S. Department of Education, beginning with *A Nation at Risk* in 1983, documented the need to improve students' preparation for the challenges of college and work. In addition, studies by labor economists point to the likelihood that U.S. employers will not be able to increase productivity unless future workers have better skills than current entry-level workers.[11] In most communities, the economic prospects of young people who lack marketable knowledge and skills are grim.

At the federal level, the growing recognition of the importance of preparing students for employment culminated in the passage of the School-to-Work Opportunities Act, which became law

[11]Murnane and Levy, 1992.

in May 1994. The act supports state and local efforts to improve schooling by making it more relevant to work, while enabling students to learn from a wide range of workplace experiences and connecting schools and workplaces in new ways (ranging from employer advisory boards to work internships and high-tech apprenticeships). The structure of the act reflects the deeply rooted American tradition of local school governance and the varied goals and circumstances of different communities by placing control of the new initiatives firmly in the hands of the states and local communities. They will make the key decisions about the instructional components, inclusiveness, and structure of school-to-work programs that will best meet their needs.

Many states began aggressive school-to-work programs before the federal legislation was passed, including Arkansas, California, Florida, Illinois, Indiana, Kentucky, Maine, Massachusetts, Michigan, New Jersey, New York, Oregon, Pennsylvania, and Wisconsin. These and most other states have now joined the national school-to-work movement, which is also strongly supported by many national organizations and foundations. Pioneering schools and school districts across the United States have created highly promising school-to-work programs for both low- and high-achieving students that offer innovative, applications-based education, and that recruit employers to supply work-based learning experiences geared to adolescents.[12]

Federal and state efforts to build a school-to-work system are evolving rapidly, and are being shaped by national budget-cutting policies and widespread unwillingness to create new bureaucracies. New funds are scarce in the field of education and are likely to remain so for the foreseeable future. In this policy climate, two themes are clear. First, policymakers now understand the need to improve the preparation that students receive for college and work, and there is broad agreement on the value of building school-to-work systems to help achieve this ambitious goal. Second, policymakers and educators want information on the effectiveness of the major school-to-work approaches and the implementation challenges they face. MDRC's Career Academies Evaluation seeks to respond to this key policy need.

Career Academies have a lengthy history as a movement to revitalize high schools.[13] The first Academies were launched in Philadelphia in 1969 as a dropout prevention strategy based on strong occupational themes and employer partnerships. The Philadelphia Academies have grown and flourished: More than 20 Academies are now administered and supported by a nonprofit organization known as Philadelphia High School Academies Inc. The state has since embarked on a course of establishing "charter schools" (based on the small-school, theme-oriented approach of the Academies) within each of its high schools. In the early 1980s, Philadelphia's Academy approach was adapted and exported to other school districts through the efforts of the Edna McConnell Clark Foundation, and it became a state-supported model for school reform in California, where the programs are known as Partnership Academies. As of the 1994-95 school year, California had more than 50 state-supported Partnership Academies and more than 50 locally supported Academies. Additional state funding has since been authorized to create 100 additional programs over the next three years. In the 1990s, Florida and Illinois have followed California's lead in establishing their own Academy networks.

Independently of these efforts, the American Express Company supported the creation of the Academy of Finance model in 1982; this initiative led to the founding of the nonprofit National Academy Foundation (NAF) to carry on the work begun by American Express with expanded support

---

[12]Pauly, Kopp, and Haimson, 1995.

[13]For a more comprehensive chronicle of the Academy movement, see Stern, Raby, and Dayton, 1992.

from many corporations, foundations, and school districts. Since 1989, NAF has developed and implemented Academy programs focused on finance, travel and tourism, and public service. With a central focus on providing schools with theme-oriented curriculum materials, opportunities for teacher development, and support for employer involvement, NAF now collaborates with more than 170 Academies nationwide.

Based on its work in the development of the present study, MDRC estimates that Career Academies have been implemented in over 300 high schools throughout the United States through the efforts of individual high schools, state and district networks, and the NAF. Clearly, the Academy approach will remain on the menu of promising education reform efforts for the foreseeable future. In fact, the Career Academy approach is among the particular educational approaches that were authorized for funding under the School-to-Work Opportunities Act.

The proliferation of Career Academy networks provides strong evidence to policymakers that the approach is robust, and that it can be readily adapted to a range of local circumstances and needs. The Philadelphia and California Academy networks have shown that the key Academy components offer promise for dropout prevention, while serving students whose achievement levels vary substantially. The NAF network has demonstrated the viability and the appeal of linking college preparation to career preparation, and the role of curriculum planning in starting and maintaining an Academy. The Florida and Illinois networks are showing how states can build reform movements that are anchored in the principles of the Academies.

In the continuing debate over education policy and reform, there is widespread interest among educators, policymakers, and members of the public in having reliable information about the operation and effectiveness of the new school-to-work initiatives that are being created across the nation. Findings from MDRC's Career Academies Evaluation will offer reliable evidence upon which policymakers can base decisions on whether to expand the Academies as part of the growing school-to-work movement.

IV. The Career Academies Evaluation

The Career Academies Evaluation is built on a foundation laid by several significant earlier studies of the Academies. Some of these have documented the feasibility and institutional growth of the Career Academy approach in a range of local settings.[14] Other studies have included assessments of the Academies' effects on student outcomes, such as graduation from high school, enrollment in post-secondary education, and labor market participation.[15]

The most rigorous study to date of the effects of Career Academies on students was conducted by David Stern, professor of education at the University of California, Berkeley, and his colleagues.[16] The study compared students in the first 12 California Partnership Academies to a group of students with similar characteristics who did not apply to an Academy. The results indicated that the Academy students earned more credits and had significantly better attendance, grades, and graduation rates than the comparison group.

---

[14]Snyder and McMullan, 1987; Stern, Raby, and Dayton, 1992; Academy for Educational Development, 1989, 1990; Pauly, Kopp, and Haimson, 1995; Stern et al., 1994.

[15]See Stern, Raby, and Dayton, 1992, for the most comprehensive summary of this research.

[16]Stern et al., 1989; Stern, Raby, and Dayton, 1992.

However, Stern and his colleagues recognized that these results could not necessarily be attributed to the Academy because the Academy students they studied may have been different in important ways from the non-Academy students in the comparison group.[17] For example, although the Academies recruited particular types of students whom teachers believed lacked motivation and were likely to drop out, these same students showed initiative by following through with the application process at the end of their 9th grade year and then enrolling the programs at the start of their 10th grade year. Thus, the study may have under- or over-estimated the Academies' effects. A random assignment research effort would be necessary to eliminate this concern, as Stern and his colleagues acknowledged in their support for this evaluation. In recognition of this, the California state legislature passed legislation in 1993 authorizing an evaluation of the Academies using random assignment of students under appropriate circumstances. The governor has since approved the present study as that evaluation.

The Career Academies Evaluation is designed to provide policy-relevant information on the following broad topics:

- Do the Career Academies improve students' school- and career-related performances above and beyond what they would have achieved had they not had the opportunity to participate in an Academy?
- How are the Career Academies different from the high school environments in which Academy students would otherwise have been enrolled, and how do these differences shape students' post-secondary education and career preparation?

The Career Academies Evaluation consists of two components: the impact study, which will address the first question above, and the process and implementation study, which will address the second. These two components will then be integrated to explore the factors that help explain the Academies' effectiveness or lack of effectiveness.

A. The Impact Study

The primary focus of the impact study is to determine the extent to which the Career Academies improve students' motivation and engagement in school, their progress toward graduation, and their preparation for post-secondary education and work. As noted above, in an effort to address the problem of comparing students who differ from each other at the onset of an evaluation, MDRC is using random assignment to learn how program-eligible individuals *would* have behaved in the absence of Career Academies. Members of the program group were invited to participate in Career Academies, while members of the control group were not invited to participate. Because there were no systematic differences between the two groups prior to the start of the program, the school- and employment-related experiences of the control group students will provide an accurate benchmark to measure how the program group students would have performed without the program. By comparing the differences between the two groups — for example, in attendance or graduation rates — one can measure the true difference that the program makes. The difference between how program-eligible individuals actually behave and how they would have behaved in the absence of the program constitutes the program's *impacts* (that is, the difference in behavior due to the program).

For this evaluation, a total of 1,953 students from the 10 sites have entered the research sample over three school years. All of these students were determined by the respective Career Academies

---

[17]Stern, Raby, and Dayton, 1992.

to be eligible and appropriate for participation in their programs. Of these, 1,064 students were randomly assigned to the program group and were admitted to the Academies. The remaining 889 students were randomly assigned to the control group, were not invited to participate in the Academies, and were left to choose other options in the high school or school district.[18]

MDRC plans to follow the students in the research sample through their scheduled graduation from high school.[19] By the end of the 1994-95 school year, a total of 1,293 students from the first seven sites to join the study had completed at least one year in the evaluation. They are referred to as the "early cohorts" in this evaluation. Chapter 6 in this report presents preliminary findings on these students' enrollment in, and, for some, departure from the Career Academies programs in the study.[20] Future MDRC reports will provide findings reflecting a longer follow-up period for all students in the sample.

The Career Academies Evaluation is extremely rare in the field of education research in that it has demonstrated the feasibility of conducting random assignment within an ongoing high school program. This required that certain threshold conditions be present or created in each of the participating sites. First, working closely with MDRC, a consensus had to be achieved among key stakeholders — including district administrators, teachers, parents, and students — that, if the Academies had more eligible applicants than they could serve, random assignment was a fair way to make the final determination as to which of the applicants would be invited to participate. Toward this end, each of the Career Academies identified and recruited large numbers of eligible students for the study, resulting in nearly twice as many students applying for the Academies as the programs were able to serve. The Academies also had to modify their application process to accommodate two important requirements of the research design: informing students and their parents about the study and gaining their consent to participate, and having all applicants complete a questionnaire on their background characteristics and prior experiences in school. When each of these conditions was met, it was then feasible and appropriate to use random assignment to create the program and control groups for the evaluation. (Chapter 4 describes how the random assignment process was adapted to the student recruitment and selection procedures in the sites.)

The use of random assignment, however, was only the first step in making effective use of this research methodology. Although random assignment has the unique strength of creating equivalent program and control groups, it is also vulnerable to some of the same limitations of other research designs. In particular, unless data on attendance, graduation, and other outcomes are collected for all students in the program and control groups, there is the potential that measured differences between

---

[18]More students were randomly assigned to the program group than the control group to ensure that the Academy programs could still operate at capacity even if some of the program group students eventually chose not to enroll.

[19]The first group of students entered the research sample at the end of the 1992-93 school year. The students who entered the study as 9th graders are scheduled to graduate at the end of the 1995-96 school year, and the students who entered the study as 8th graders are scheduled to graduate at the end of the 1996-97 school year. The last group of students entered the research sample as 9th graders at the end of the 1994-95 school year. These students, along with those who entered the study as 9th graders in the 1993-94 school year, are scheduled to graduate from high school at the end of the 1997-98 school year.

[20]Of the students in the early cohort group, 446 entered the study at the end of the 1992-93 school year and had completed two years in the study by the end of the 1994-95 school year. Information on these students' second-year experiences is also presented in Chapter 6.

the groups could be due to missing data. Second, if high percentages of students in the program group do not enroll in the Career Academies, or if high percentages of students in the control group do (through administrative errors or policy changes), the overall differences in school experiences are more likely to be similar. Third, to understand the differences in outcomes for the program and control groups, it is necessary to understand the key differences between the Academy and non-Academy environments to which students are exposed.

In an effort to maximize the utility of the random assignment research design, MDRC has put in place several other research-related activities. Most importantly, MDRC has worked closely with the sites to collect data on the students in the research sample throughout their high school years and, if additional funding becomes available, for up to three years after scheduled graduation. To make full use of the random assignment research design, MDRC plans to obtain equivalent information for all students in the program and control groups and to monitor their level of exposure to the Career Academy programs. Specifically, the data for the study come from a questionnaire students completed at the time they applied to the Career Academies and prior to random assignment; school records on attendance, achievement, course-taking patterns, and progress through high school; and a questionnaire that will be administered during the students' 12th grade year. To ensure that data are collected for all students in the research sample (including those who move or drop out of high school), MDRC has established locating procedures to update students' addresses and school enrollment status on a regular basis. If additional funding becomes available, MDRC also plans to administer two additional surveys to learn about students' participation in post-secondary education and employment.

MDRC is also collecting a broad range of qualitative and quantitative information about the participating Career Academies, the high schools and districts in which they are located, and the Academy and non-Academy students and teachers in the schools. These data will be used in the process and implementation study described below.

B. The Process and Implementation Study

This portion of the study will document the key differences between the Career Academies and the high schools within which they are located and where most of the control group students in the research sample are enrolled. First, it will be necessary to investigate how the core components of the Academies model were implemented and sustained in the 10 sites in the study. It will also be important to understand how the experiences of Academy students differ from those of students in the regular high school programs. Finally, data will be obtained to learn how contextual factors (such as school district policies and trends in the local labor market) influence the Academies' operation and effectiveness.

To address these issues, MDRC is collecting several types of data on the study sites. First, data are being collected during a series of field research visits to each of the sites.[21] These visits provide MDRC researchers with the opportunity to interview Academy teachers and students, school and district administrators, and local employer partners. MDRC staff also observe classes and other program activities, such as student recruitment and special events. Extensive qualitative information was also collected during the site selection process and during visits to the sites to monitor implementation of the research procedures. This information will be used to describe the particular characteristics of the participating Career Academies and their local contexts.

---

[21]During the 1994-95 school year, MDRC collected in-depth information for the first seven sites to join the study. Similar information is being obtained for the remaining three sites during the 1995-96 school year.

Survey data are also being collected and will be used to make systematic comparisons between the experiences and perceptions of Academies students and teachers and those of their non-Academy counterparts. Finally, MDRC is collecting data from student transcripts and school administrative records to document the students' patterns of enrollment and attendance in Academy programs over the time they are in high school.

C. Status of the Career Academies Evaluation and an Overview of This Report

Ten high schools and their Career Academies are participating in this study. Chapter 2 describes the process by which MDRC identified and selected these sites to participate. It also presents the demographic characteristics of the nine school districts in which the participating Career Academies are located.

Chapter 3 describes the key features of the participating Career Academies and highlights some of their similarities and differences. In general, this information reflects the characteristics and statuses of the Academies and their host high schools during the 1994-95 school year. Because the programs and high schools are evolving, dynamic institutions, some of the information may have changed since that time. Updated information will be presented in future reports.

Chapter 4 describes the student recruitment, application, and selection processes used by the Career Academies. It also discusses how the random assignment procedures were incorporated into existing application and selection procedures. Chapter 5 describes the background characteristics of the students in the research sample and their families, and also includes a discussion of the extent to which these characteristics indicate that students in the research sample may be at risk of dropping out of high school. This information is drawn from the questionnaire students completed at the time they applied to the participating Career Academies. Chapter 6 offers some preliminary findings on students' patterns of participation in the programs. Finally, Chapter 7 describes the teachers in the Career Academies and compares their perspectives on teaching and their work environment with those of their colleagues in the regular high school programs.

CHAPTER 2

SITE SELECTION

The 10 sites participating in the Career Academies Evaluation were chosen strategically by MDRC after extended discussions with key stakeholders in the school districts and high schools. The goal of the selection process was to identify Career Academies that would provide a credible test of the Career Academy approach as it had been defined in previous research and implemented in a broad range of settings. This meant that MDRC first sought to ensure that the selected Career Academies were well-established, rather than in initial or partial stages of implementation. At the same time, it was important that the participating Academies not be "hothouse" programs that would be seen as incapable of being implemented under a broad range of conditions and circumstances. Thus, Academies were selected to include school districts and high schools reflecting the diversity of settings (urban districts, small cities, and rural areas) in which Career Academies have been implemented. MDRC was specifically interested in Academies serving a broad range of students, including those who were perceived to be at risk of not succeeding in the regular high school environment.

In addition, MDRC sought high schools in which there was a clear contrast between the Career Academy and other programs available to potential Academy students. This was important because one of the primary concerns of the study was whether Career Academies improve students' post-secondary education and employment outcomes above and beyond what would have occurred had they not had the opportunity to attend an Academy. Because some high schools and school districts operate more than one Career Academy or Academy-like program, most students in both the program and control groups in such circumstances would likely be involved in similar programs. This would reduce the contrast between students' experiences in the program and control groups and could make the Academies appear ineffective. Finally, schools and school districts were selected only if they agreed to carry out the requirements of the random assignment research design and other key data collection and research activities.

This chapter first describes the application of the criteria MDRC used to select sites for the Career Academies Evaluation and discusses how these criteria enable the study to provide a credible test of the Academy approach's effects. It then describes the process by which MDRC identified sites and reached an agreement to include them in the study. The final section describes the nine school districts that host the 10 Career Academies participating the evaluation.

I. Site Selection Criteria

High schools and school districts were selected to participate in the Career Academies Evaluation on the basis of whether they met five general criteria:

- They were already operating a "mature" Career Academy that conformed with well-established characterizations of the approach;
- They reflected the diversity of circumstances under which Career Academies have been implemented;

- They had Career Academies that included students perceived as being at risk of dropping out or of poor performance;
- There was a clear contrast between the Career Academy and other programs within the high school; and
- They supported the random assignment research design and other key research activities.

These criteria were intended to serve as flexible guidelines for identifying a group of Career Academies with enough in common to allow results from the study to reflect the Career Academy approach in general, and, at the same time, to allow enough diversity to explore the extent to which the results are consistent across a range of conditions. The following discussion elaborates on the criteria and their relevance to the goals of the evaluation.

A. Mature Career Academies

The goal of the selection process was to identify high schools that had been operating a Career Academy for at least two years and had incorporated a concrete version of each of the three basic Career Academy structural components: the school-within-a-school organization; the integrated academic/occupational curriculum; and employer partnerships. As noted in Chapter 1, much of the previous research on Career Academies has focused on issues related to their initial implementation or on their effectiveness at relatively early stages. This evaluation's primary goal was to produce the most reliable evidence possible about whether the Career Academy approach produced positive effects on students' progression to post-secondary education and employment and to shed light on the processes by which the approach did or did not make a difference for students. By focusing on established Career Academies and using a random assignment research design, this evaluation can maximize the reliability of findings that may link changes in student outcomes with the Career Academy approach.

To address a more practical concern, it was necessary that the programs be fairly similar because the research samples at individual Career Academies were not likely to be large enough to yield reliable estimates of each site's effectiveness separately, and thus data would have to be aggregated across sites. The intent was not to identify Academies that fit a cookie-cutter mold, but to establish parameters and minimum requirements while leaving considerable room for local autonomy and flexibility to make program adaptations and modifications.

To clarify the definition of a mature Career Academy, therefore, MDRC set explicit, but still relatively broad, parameters for the configuration of the three structural components. Regarding the school-within-a-school aspect of the approach, MDRC was primarily interested in Career Academies that had:

- a school-within-a-school organization in which Academy students took at least three courses together each semester during the 11th grade and two courses during the 12th grade;
- students who began participating no later than 10th grade; and
- a teaching team consisting of at least four teachers who regularly engaged in shared planning activities and who stayed with the students through the 12th grade.

The objective was to identify programs where students and teachers had the opportunity to be involved in a Career Academy for at least three years during high school. Some Career Academies were not considered for the evaluation because they did not begin until the 11th grade or because students were scheduled to take only one or two Academy classes each year.

Regarding the integration of academic and vocational education, MDRC was interested in identifying Career Academies that had:

- a well-defined sequence of academic and vocational classes that students were expected to take throughout high school; and
- teachers who worked together to coordinate the content of vocational and academic curricula.

The objective here was to identify programs that had the potential to provide students with opportunities to experience alternative instructional strategies.[1] While nearly all Career Academies include both academic and vocational courses, some programs do not integrate the curriculum in a substantial way. As will be discussed in Chapter 3, even among the sites participating in the study there is considerable variation in strategies for integrating academic and vocational curricula.

Regarding employer partnerships, MDRC was interested in Career Academies in which employers:

- played a valued advisory role;
- provided students with work-based learning opportunities; and
- contributed to the Academy in other ways, such as providing guidance on career awareness and employability skills, acting as mentors for students, speaking to groups of students, sponsoring field trips, and contributing funding and materials.

As previous research has suggested, employer partnerships are often difficult to form and sustain for both schools and businesses.[2] It was particularly challenging to find Career Academies with employer partnerships that provided work-based learning positions for large numbers of students. Some of the Career Academies considered for the study had only small work-based learning programs, and the employer contributions often consisted primarily of funding or equipment, rather than time spent working with students as mentors or supervisors in the workplace. As with many other school-to-work programs, starting and sustaining meaningful and extensive employer partnerships is one of the primary challenges facing the Career Academies. As discussed earlier, however, Career Academies have been among the most successful school-to-work approaches at developing these partnerships.

High schools often operate programs that incorporate one or two of the three fundamental features of the Career Academy approach, but relatively few incorporate all of them. For example, some high schools operate other school-within-a-school programs, including dropout prevention or recovery programs, but they do not utilize an occupational theme or engage in employer partnerships. Many high schools operate vocational education programs, and some of these attempt to integrate

---

[1]Examples of these alternative strategies — including active and applied learning, cooperative learning, and learning in context — can be found in Grubb, 1995; Resnick, 1987a; Raizen, 1989.

[2]See, for example, Pauly, Kopp, and Haimson, 1995; Stern, Raby, and Dayton, 1992.

academic and vocational curricula. Yet few of these programs are organized as schools-within-schools and involve employers in a structured and systematic way.

A key contribution of the present study, therefore, will be to produce reliable estimates of the extent to which mature Career Academies produce improvements in students' progress through high school and their preparation for post-secondary education and work, and to examine the processes that may help explain the effects of different versions of the approach and the context within which they operate. The study does not focus on the process of starting an Academy or tracking its initial evolution. A thoughtful and growing literature already exists on these aspects of the Academy movement.[3]

Chapter 3 provides a detailed description of each of the 10 Career Academies participating in this study, including a discussion of their particular versions of the school-within-a-school, integrated curriculum, and employer partnerships.

B. Sites That Reflect the Feasibility of Career Academies Under a Broad Range of Circumstances

The Career Academy approach has proliferated, in part, through the efforts of several established networks, including the California Partnership Academy network, Florida's Academies for Career Development and Applied Technology, and the NAF. Many high schools and school districts, however, have implemented Career Academies independent of these established networks, and Academies can be found throughout the country in large urban school districts, in small cities, and in rural areas. Some school districts operate only a single Career Academy, while others have attempted to implement at least one Academy in each of their high schools.

To maximize the applicability of the findings in this evaluation, site selection efforts were designed to identify Academies that reflected the broad range of circumstances under which the Career Academy approach has been implemented and sustained. MDRC sought Academies from as many of the major networks as possible, from those that had evolved independently, from urban and non-urban school districts, from those that stood alone within a district, and from those that were one of many within a district.

The highest statewide concentration of Career Academies is in California, where the Academy movement has been institutionalized through state legislation and the supplementary funding it provided. Because a considerable research base already exists on the California Partnership Academies and because the Academy movement has extended well beyond this most fertile environment, MDRC sought to include a more nationally representative group of sites. The second part of this chapter provides information about the characteristics of the sites in the study and discusses the extent to which the goal of diversity was accomplished.

C. Career Academies That Seek to Include "At-Risk" Students

MDRC's interest in the Career Academies grew out of its previous work studying employment

---

[3]Several previous studies of Career Academies focused primarily on issues related to their initial implementation and factors that influenced their ongoing operation. Other studies, which attempted to assess Academies' effects on student outcomes using other research designs, were conducted relatively early in the proliferation of the approach. This body of evidence indicated that the initial Career Academy programs produced positive results and that the basic Academy approach could be adapted to a range of settings. See Stern, Raby, and Dayton, 1992, for a review of this research.

and training programs for high school dropouts. This and other research highlight the stark fact that failure in high school is difficult for students to overcome.[4] With this in mind, MDRC became interested in the Career Academies, in part, as a potentially effective strategy for preventing students from dropping out of high school and for improving their prospects for a successful transition from high school to post-secondary education and work. To maximize what could be learned in this regard, it was important that the research sample include a substantial number of students who appeared to be at risk of dropping out or performing poorly in high school. As part of the site selection criteria, therefore, MDRC focused on school districts and high schools with previous histories of high dropout rates and low scholastic achievement. MDRC was also interested in Career Academies that used student recruitment and selection strategies to include, rather than exclude, students who appeared to be at risk of dropping out or performing poorly in high school.

Early on, however, MDRC found that most Career Academies attempted to be inclusive in their selection of students and did not usually target only the lowest (or highest) achieving students. The student selection criteria most Academics use are quite broad, even in the case of the California Partnership Academies, where state legislation specifies that Academies should target students judged to be "at risk of dropping out" as indicated by such factors as a past record of irregular attendance or underachievement, evidence of low motivation or lack of interest in the regular school program, or low-income status.[5] Also, most Career Academies do not keep systematic records regarding students' levels of educational risk or economic status. This made it difficult to clearly determine the proportion of Academy students who might be at greater or lesser risk of educational failure.

As a result, MDRC was not able to set specific guidelines for this site selection criterion. The best proxy available was a combination of the demographic and education characteristics available for the school district or, in some cases, the high school. MDRC also took into account the general eligibility criteria described by staff in the Career Academies. The student recruitment and selection process used in the various Career Academies is discussed in greater detail in Chapter 4, and the characteristics (including those that indicate the level of risk for dropping out) of students in the research sample is discussed in Chapter 5. This evaluation provides the first systematic analysis of the characteristics of students from such a broad range of Career Academies.

D. An Environment in Which There Was a Contrast Between the Career Academy and Other High School Programs

All students in the research sample were enrolled in high school or middle school at the time they applied to the Academies, and most were likely to be enrolled in high school during, at the least, the following school year. Thus, the fundamental questions being addressed in this study involve a comparison between Career Academies and other high school programs in which Academy students might otherwise enroll. To test the unique effect of the Career Academy approach, therefore, the researchers sought to identify high schools in which the Academy was different from the regular school structure and from other alternative programs. This meant that it was necessary to find schools with only a single Career Academy or Academy-like program. Schools with several Career Academies or Academy-like programs would reduce the contrast between the environments of students in the

---

[4]See, for example, William T. Grant Foundation Commission on Work, Family, and Citizenship, 1988; Cave and Doolittle, 1991; Cameron and Heckman, 1993; Murnane and Levy, 1992; Cave et al., 1993; Orr et al., 1994; Bos, 1995.

[5]Stern, Raby, and Dayton, 1992.

program and control groups, which could make the Academy program under study appear ineffective because the experiences of students in the Academies would likely be very similar to those of other students. This led MDRC to drop from consideration high schools and school districts (such as Philadelphia) with large numbers of Career Academies that were widely accessible to all students. However, several of the participating school districts do include several Academies in various high schools from which students can choose, but the other Academy or Academy-like programs are generally not accessible to students in the study because of their location or selection criteria.

A related consideration was to ensure that the participating sites were not at the beginning or in the midst of a large-scale school reform effort or crisis that might dramatically alter or eliminate the existing Career Academy. Given the longitudinal nature of the study, it was important to select sites that had a good chance of offering students the full three- or four-year Career Academy experience.

E. Capability and Willingness to Implement the Research Activities

Several dimensions of this criterion were explored in the course of determining whether prospective sites were appropriate for the study. First, it was important to work closely with staff in prospective sites to assess the feasibility of implementing the random assignment design. In general, random assignment was considered feasible if an Academy was "oversubscribed" or, with broadened and more intensive recruiting, would be oversubscribed. That is, the teachers and administrators responsible for the Career Academy programs were asked to determine whether there were more eligible and appropriate students in the high school (or in the middle or junior high schools that feed into the high school) than there were available slots in the program. In this environment, selection decisions would have to be made to include some eligible students and exclude others. Sites were considered for the study only if there was an excess demand for the Career Academy (or where staff wished to make the Academy more widely known to potential applicants), and if staff and parents perceived random selection as an appropriate method for selecting eligible students.

A second dimension of this criterion was that MDRC sought sites that would enroll substantial numbers of students in the research sample. In particular, MDRC was interested in Career Academies that enrolled at least 50 new students each year and had the capacity to recruit approximately 100 to 110 eligible applicants. This was crucial because, first, random assignment would be neither feasible nor appropriate without a substantial number of applicants. Second, without an adequate number of students in the research sample in each site, even results that were aggregated across sites would be of tenuous reliability. The fact that Career Academies were either too small or could not generate enough applicants was probably the most common reason that sites were not included in the study.

Third, MDRC worked closely with sites to develop appropriate procedures for implementing the random assignment design. The goal of this work was to develop procedures that would minimize changes to the existing student selection criteria, adhere to the fidelity of the random assignment research design, and provide for the ethical protection of the students. The primary change in the existing selection process was to have the sites increase recruitment efforts in order to enlarge the pool of eligible and appropriate applicants. Sites were also asked to explain the evaluation to potential applicants, have students complete a Student Baseline Questionnaire, and obtain parents' consent to have their children participate in the study. Sites were not asked to change their eligibility criteria or procedures for determining eligibility and appropriateness. Chapter 4 describes the recruitment and selections strategies used and how the requirements for conducting random assignment were incorporated.

Fourth, MDRC also worked with prospective sites to develop specific strategies and procedures for obtaining data in such areas as enrollment, attendance, retention, graduation, course credits, and grades. In addition, sites were asked to facilitate other data collection efforts, including surveys of teachers and students and field research activities.

II. The Site Selection Process

Over the first two years of the study, MDRC identified more than 100 Career Academies as potential candidates for the study and visited nearly 50 of these. In all, 12 Career Academies were asked and agreed to participate; 10 were ultimately able to meet the requirements of the random assignment research design. Site selection was a three-stage process: identifying potential candidates and disseminating information about the study; collecting basic information about these candidates to gauge their interest in and suitability for the study; and visiting the sites to collect more information and engage in extended discussions to determine the feasibility and appropriateness of moving forward with the study there. At each stage, sites were dropped from consideration because of a lack of fit with one or more of the criteria discussed above. The most common reason for not moving forward with the study was that MDRC and representatives from a site determined that the Career Academy would not be able to meet the requirements of the research design, often because it did not have the capacity to recruit and serve an adequate number of students to conduct random assignment. In other cases, MDRC felt that one or more of the Career Academy components had not matured to the level of other sites. Following is a description of the three stages of the selection process.

A. Identifying Career Academies and Disseminating Information About the Study

MDRC began its site selection process by identifying Career Academies through the California Partnership Academy network — the oldest and most extensive statewide network of Academies. MDRC staff met with Academy directors from the major California school districts, and with state officials and consultants who were responsible for implementing the California Partnership Academies and providing technical assistance to sites. Staff also made presentations at California's state-sponsored annual conference of Academy directors and teachers in 1992 and 1993, which afforded the opportunity to describe the proposed study and its benefits and requirements to nearly 300 high school staff. The responses at both conferences and throughout the site investigation activities in California were favorable and resulted in a significant pool of interested sites.

With the encouraging reaction of the California Partnership Academies, MDRC extended its site development activities to other states and school districts, starting with the Philadelphia Academies and their offshoots across the country. This included Academies in Peoria, Illinois; Pittsburgh, Pennsylvania; and Portland, Oregon. MDRC also explored other Academy networks, including: NAF affiliates that had been modified to fit the Philadelphia/California model more closely; the state-initiated network of Academy programs in Florida; the Public/Private Partnership programs and Academies developed by the District of Columbia Public Schools in the early 1980s; and Academies identified through national education associations, such as the Council of Great City Schools, and through research on promising school-to-work transition programs. The reaction of most non-California sites to the proposed evaluation was also favorable.

The NAF, which supports a national network of Academies, and Florida's Academies for Career Development and Applied Technology — at the time, the only other state-sponsored Career Academy initiative — provide examples of the manner in which many non-California school districts

responded to being considered for the study. The process of identifying sites within NAF and Florida began with presentations at their respective program directors' and professional development conferences. NAF and Florida staff told MDRC that they had neither the personnel nor the financial resources to reach the many thousands of school districts that could potentially benefit from the Academy model. They saw the Career Academies Evaluation, and the related dissemination of results, as a complement to their efforts to bring the Academy model to a wider audience. NAF and Florida staff agreed to identify potential sites in their network and to advocate for their participation in the study if there appeared to be a good fit between local conditions and the needs of the study. At the time, leaders of the NAF and Florida Academy networks were encouraging Academies to expand their programs to serve students throughout all the high school grades, rather than just the 11th and 12th grades. They also supported Academies that wanted to expand their target populations to include more educationally at risk students. NAF and Florida staff anticipated that the study could provide information about how these adjustments in program design might influence their operation and effectiveness.

B. Collecting Information About the Sites

To assess the suitability of prospective sites for the Career Academies Evaluation as systematically as possible, MDRC asked Academy staff to complete a brief questionnaire asking when the Academy was created, the number and grade levels of students it served, an estimate of the number of students who typically apply, the number of academic and vocational classes offered within the Academy, the number and timing of work experience placements for students, the roles employers play, and the availability of other Academies or Academy-like programs in the district and high schools. The questionnaire was accompanied by a short paper that explained the purpose and methods of the study as well as its benefits and requirements for sites wishing to participate.

MDRC used the questionnaire data to screen out prospective sites that were clearly not appropriate for the study. In most cases, this included programs that were open only to 11th or 12th grade students, programs that enrolled only 20 to 30 students per year, and programs that were only in the first year of operation. Career Academies that appeared to have implemented some version of the core elements of the Academy approach, and were clearly not inappropriate for other reasons, were contacted by phone to discuss their potential interest in participating in the evaluation. During this discussion, MDRC staff also inquired about other factors that might make the program appropriate for the study. For example, some programs were not considered further because the high school operated several other Academies or Academy-like programs. Others were not considered further because the Academy staff did not believe it was possible to identify additional applicants for the program.

C. Site Visits and Consensus-Building

In the next step in the process, an MDRC staff member visited sites to gather more detailed information about the Career Academy and its local context. This staff member discussed the study with various groups of stakeholders, including school administrators, teachers, district administrators, representatives or staff from the school board, and the Academy's employer advisory boards. The purpose of these meetings was to explain the benefits and responsibilities of being in the evaluation, to clarify the details of the study, and to discuss challenging issues regarding random assignment. The benefits of participation in the evaluation include the opportunity for stakeholders to learn more about how their Career Academies compare in terms of effectiveness with other sites; opportunities for idea-sharing and information exchange through two multi-site conferences convened by MDRC; and the chance to contribute directly to local, state, and national policy development. MDRC also provided

each site with a grant to be disbursed over three to five years to compensate for research-related costs, such as enhanced recruitment efforts and data collection.[6] A portion of this funding was intended to help support program operations and development in such areas as outreach, marketing, and reinforcing the employer partnerships.

The evaluation's requirements were also reviewed with site staff, including generating a large enough pool of eligible, interested applicants to fill all Academy slots and allow for a control group; having applicants complete a Student Baseline Questionnaire; implementing random assignment; monitoring random assignment program and control group statuses for four years; participating in the field research activities; and providing school-records data on all sample members (with protection of confidentiality).

On the basis of this site visit and subsequent discussions by phone, MDRC and several representatives from the site reached a mutual decision on whether to continue further involvement in the study. Many of the sites were dropped from further consideration at this point because they did not believe they had the capacity to identify and serve enough eligible applicants to conduct random assignment or, if they could, they were not willing to use random assignment to select eligible applicants. Others were eliminated after site visits, during which MDRC staff learned that while the Career Academy components were developed on paper, there was limited evidence that they were actually in operation. The most common elements that were underimplemented were substantive efforts to integrate academic and vocational curricula (usually because teachers had little or no opportunity to collaborate with each other) and work-experience programs that were able to serve only a limited number of students. In other cases, there was very little evidence of a school-within-in-a-school because Academy students took only one or two courses together, and teachers did not have any shared planning time.

In sites that were appropriate for the study, and where staff were interested in continuing the development process, MDRC engaged in a partnership designed to enhance the success and utility of the study. This effort continued with extended discussions of the requirements and benefits of participation in the study and involved all of the interested stakeholders connected to the Academy and the surrounding school district. At this point, an MDRC staff member made a second visit to the site to meet personally with the key stakeholders.

The end product of the site selection and discussions was the development, negotiation, and signing of a formal Memorandum of Agreement (MOA) between MDRC and the key stakeholders in the school district — usually the Academy director, the high school principal, and the district superintendent. The MOA spells out the terms and conditions for participating in the evaluation, codifies the agreements reached through the discussions, and functions as the legal document specifying the conditions regarding the grant awards to participating programs. The schedule for making the grant awards usually coincided with the timing of student recruitment and the delivery of key data to MDRC.

MDRC signed an MOA with each of 11 school districts, including 12 Career Academies. Each of these sites met all or nearly all of the site selection criteria discussed earlier, although two of them eventually withdrew from the study because they were not able to identify enough applicants to permit the use of random assignment. Overall, the 10 participating Career Academies satisfy the basic criteria described earlier. They each contain the core Academy components, are distinctive within their host

---

[6]The grant amount varies from site to site depending on predetermined needs and circumstances.

high schools, are able to meet the conditions for conducting random assignment, and have made a commitment to the research requirements. Chapter 3 provides a more detailed description of the 10 Academies and compares them on a variety of dimensions. Chapter 4 describes the procedures sites used to recruit students and how they conducted random assignment. The remainder of this chapter provides some general background about the participating Career Academies and their host school districts.

III. Characteristics of the Participating School Districts

Figure 2.1 shows the names, locations, host high schools and school districts, and network affiliations of the 10 Career Academies participating in the evaluation. It shows that the Academies use a range of occupational themes: Three are in the business and finance fields; three are in high-technology areas, including electronics and aerospace technology; and one each are in the fields of health, public service, travel and tourism, and video technology. The Academies were drawn from most of the major, established networks of Career Academies across the country: Four are from the California Partnership Academy network; two are from the NAF network; one is from Florida's network of Academies for Career Development and Applied Technology; one is from the District of Columbia's Academy network; and two were developed independently through local high school or district initiatives. Figure 2.1 also shows that, as of the 1994-95 school year, the participating Career Academy programs had been in operation for as few as two years and as many as 10.

There are two notable gaps in the representation of Career Academies in the study. First, it was not possible to include any of the Philadelphia Academies. As of the 1994-95 school year, a total of 23 Career Academies in 16 high schools were associated with Philadelphia High School Academies, Inc. Ironically, this unique proliferation of Academies prohibited their inclusion in the evaluation because of the high likelihood that a large percentage of students in the research sample (both program and control group students) would be involved in one of the Academies. In this context, the evaluation would have been comparing one Academy with a group of other Academies.

Second, although Career Academies exist in some Midwestern cities, there are relatively few compared to cities on the East and West coasts, and none of those identified by MDRC were suitable for the study. Efforts were made in that region to contact state departments of education and their vocational education offices, but education officials reported that they were not aware of Career Academy or Academy-like programs in the state. MDRC also contacted the central offices of several large school districts in the Midwest, but this did not turn up many promising prospects. The notable exceptions were the Chicago and Cleveland Public School Districts, which do operate several Career Academy programs. After several discussions with district and school officials, however, it was decided that none of the programs was suitable for the study. In the case of Cleveland, the district's school desegregation plan prohibited the use of random assignment to select students for particular programs. In Chicago, the district was in the midst of a major school reform effort that was directly affecting the Career Academy programs.

Table 2.1 summarizes the major characteristics of the nine school districts and cities in which the 10 participating Career Academies are located.[7] Most of the nine districts are large and serve

[7]Two Electronics Academies are located in the East Side Union High School District in San Jose, California.

Figure 2.1

Career Academies Evaluation

Names, Locations, and Affiliations of Participating Career Academies

	Academy and High School	School District and City	Academy Network and School Year Academy Started
1.	Business and Finance Academy George Westinghouse High School	Pittsburgh Public Schools Pittsburgh, PA	Independent 1984-85
2.	Academy of Finance Lake Clifton/Eastern High School	Baltimore City Public Schools Baltimore, MD	National Academy Foundation 1987-88
3.	Public Service Academy Anacostia High School	District of Columbia Public Schools Washington, D.C.	D.C. Public Schools Academy Network 1989-90
4.	Academy for Aerospace Technology Cocoa High School	Brevard County Public Schools Cocoa, FL	Florida's Academies for Career Development and Applied Technology 1993-94
5.	Academy of Travel and Tourism Miami Beach Senior High School	Dade County Public Schools Miami Beach, FL	National Academy Foundation 1991-92
6.	Health Professions Academy Socorro High School	Socorro Independent School District Socorro, TX	Independent 1991-92
7.	Global Business Academy Valley High School	Santa Ana Unified School District Santa Ana, CA	California Partnership Academy 1991-92
8.	Watsonville Video Academy Watsonville High School	Pajaro Valley Unified School District Watsonville, CA	California Partnership Academy 1991-92
9.	Electronics Academy (SC) Silver Creek High School	East Side Union High School District San Jose, CA	California Partnership Academy 1984-85
10.	Electronics Academy (I) Independence High School	East Side Union High School District San Jose, CA	California Partnership Academy 1984-85

Table 2.1

Career Academies Evaluation

Selected Characteristics of Participating School Districts and Their Populations

Characteristic	National Average	All Sites Average	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academies[a] San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
School district characteristic											
Name of school district	--	--	Brevard County	Baltimore City	Dade County	Pittsburgh	East Side Union High	Santa Ana Unified	Socorro Independent	District of Columbia	Pajaro Valley Unified
Enrollment	2,610	72,790	53,619	107,782	279,357	39,559	21,566	42,785	12,998	81,301	16,147
Minority students (%)[b]	38.3	72.0	17.5	81.7	80.2	53.3	73.0	91.9	90.4	96.3	63.8
Students eligible for free lunch (%)[c]	8.5	42.7	21.1	55.5	43.1	48.6	18.9	57.9	61.2	26.9	50.7
Number of teachers	152	3,944	3,037	5,627	15,388	2,493	921	1,718	692	4,908	708
Student/teacher ratio	17.2	19.7	17.7	19.2	18.2	15.9	23.4	24.9	18.8	16.6	22.8
Number of schools in district	5	101	73	177	301	82	12	45	11	134	25
Per pupil expenditure[d]	$5,212	$6,034	$4,947	$5,119	$6,159	$8,481	$5,209	$4,404	$7,191	$7,214	$5,586

(continued)

BEST COPY AVAILABLE

Table 2.1 (continued)

Characteristic	National Average	All Sites Average	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academies[a] San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
Population characteristic											
Total population in district	16,283	537,532	398,978	736,014	1,937,094	373,877	423,401	230,768	49,330	606,900	81,426
Population density of city per square mile[e]	--	6,812	418	8,986	12,985	6,598	4,678	10,628	2,216	9,531	5,268
Minority (%)[f]	24.2	57.4	12.5	61.3	69.6	28.2	63.5	79.6	85.3	72.6	44.2
Children under age 18 living below the poverty line (%)[g]	17.8	23.5	12.2	31.6	24.0	31.1	16.1	22.9	34.0	24.4	15.0
All persons living below the poverty line (%)[g]	12.8	16.7	9.0	21.2	17.6	20.3	9.7	18.6	26.9	15.9	11.1
District includes students in non-urban areas[h]	--	--	yes	no	yes[i]	no	yes	no	yes	no	yes
Youths ages 16 to 19 who are not enrolled in school (%)[j]	10.0	15.7	11.8	19.3	11.2	11.4	14.2	28.8	11.8	15.9	16.7
Youth unemployment rate (16 to 19)	n/a	20.1	16.1	23.2	19.2	21.1	16.1	17.9	32.0	21.0	14.4
Unemployment rate[k]	6.2	8.1	5.6	9.2	7.6	9.0	6.3	9.0	11.2	7.0	8.0
Households receiving public assistance (%)[l]	7.5	10.1	4.2	16.4	10.0	13.7	11.2	8.5	10.3	8.9	7.9
Median household income	$30,056	$30,587	$30,535	$24,045	$26,909	$20,707	$47,918	4,664	$23,666	$30,727	$36,112
Persons age 20 and over with a high school diploma (%)	76.0	67.5	82.4	61.9	66.1	74.6	73.2	44.7	60.6	74.1	69.9

(continued)

Table 2.1 (continued)

Sources: The *School District Data Book* (1994), a CD-ROM software and database system developed by the MESA Group (with data supplied by the U.S. Bureau of the Census and the National Center for Education Statistics), which contains census and finance data and administrative records, and the *County and City Data Book 1994*. The "youth unemployment rate (16 to19)" comes from the *1990 Census of the Population: Social and Economic Characteristics*.

Notes: Where data are not applicable, dashes are used.

[a]The Electronics Academy at Independence High School and the Electronics Academy at Silver Creek High School are located within the same school district.

[b]Percent of students who are enrolled in the school district and are black, Hispanic, Asian/Pacific Islander, or other.

[c]Where data were not available from the *School District Data Book*, the information was supplemented using the *1990 Census of the Population: Social and Economic Characteristics*.

[d]Per pupil expenditures may not be comparable because of differences in each school district's definition of what is included in total expenditure per student.

[e]Population density per square mile is based on the city or adjoining city where each school district is located. In Cocoa, FL (Academy for Aerospace Technology), county data were used because city information was not available.

[f]Percent of persons who are living within the school district and are black, Hispanic, Asian/Pacific Islander, or other.

[g]The number of children (or persons) below the poverty level is the sum of the number of children (or persons) in families with incomes below the poverty level and the number of unrelated individuals with incomes below the poverty level.

[h]A non-urban area is defined as a central area that, together with the adjacent densely settled surrounding territory, has a minimum of 50,000 persons.

[i]Although the Dade County school district includes students from rural areas, the site being evaluated is located in an urbanized area.

[j]This was calculated by dividing the total number of persons 16-19 years old who are not high school graduates and not enrolled in school by the total number of children 14-19 years old (assuming there are no official dropouts between the ages of 14-15, when it is illegal for children to drop out of school).

[k]The unemployment rate was calculated as the number of civilian unemployed divided by the total number of people in the labor force (civilian employed plus civilian unemployed).

[l]The percent of households receiving public assistance was calculated as the number of households receiving public assistance in 1989 divided by the total number of households (households with assistance plus households without assistance).

relatively high percentages of minority and low-income students. This reflects a combination of the fact that the majority of Academies are located in such districts and that MDRC targeted these types of sites for the Career Academies Evaluation.

At the same time, the nine school districts reflect substantial variation. For example, Table 2.1 shows that the participating districts' enrollments range from just under 13,000 students in Socorro to almost 280,000 students in Dade County. The representation of students of color varies from 18 percent in Brevard County to 96 percent in the District of Columbia. Per pupil expenditures range from less than $4,500 per year in Santa Ana to nearly $8,500 per year in Pittsburgh. In four of the districts, over half the students are eligible for free or reduced price lunches, while just over 18 percent are eligible in East Side (San Jose) and in Brevard County.

Table 2.1 also highlights several differences in the population characteristics of the school districts in which the Career Academies are located. Five districts are located in larger urban areas: Washington, D.C.; Baltimore, Maryland; Pittsburgh, Pennsylvania; Miami, Florida; and Santa Ana, California. By contrast, Watsonville, California, includes a large rural and agricultural population (it does not include nearby Santa Cruz, which is more urbanized). Socorro, located 10 miles from downtown El Paso (which is served by a separate school district), also includes a large rural and agricultural population but is growing rapidly and does serve other areas within the El Paso city limits. Brevard County, Florida, is also not part of a metropolitan area and does not contain a major city. East Side Union High School district in San Jose, California, is part of Santa Clara County, which contains diverse urban and non-urban areas. However, it is not part of San Jose's core-city area, which is served by the San Jose Unified School District. This means that the population density of East Side is lower than the population density of downtown San Jose.

Table 2.1 also displays community information on several indicators of poverty: the proportion of children and families living in poverty, the youth and total unemployment rates, median household income, proportion of households receiving public assistance, and the adult rates of high school diploma receipt. The incidence of poverty is relatively high except in Brevard County. The evaluation includes sites serving substantial numbers of low-income students, and in both urban and non-urban areas. This range of site characteristics enhances the national applicability of the findings.

CHAPTER 3

CHARACTERISTICS OF THE PARTICIPATING CAREER ACADEMIES

Creating a Career Academy requires establishing a new structural framework not found in most high school programs and building on it to change the way that teaching and learning occur. Here, structural changes refer to those aspects of the Career Academy approach that alter the organization of a high school, modify the stated curriculum, or establish new links between the high school and employers. This chapter describes the new structures that were established by the 10 Career Academies in this study.[1] Chapter 7 (and subsequent reports from this study) will describe some of the ways these structures have supported changes in teaching and learning in the Career Academies.

Each of the participating Career Academies confirmed that they share and have sustained the three basic structural features — schools-within-schools, an integrated academic/occupational curriculum, and employer partnerships — that differentiate them from the rest of the large comprehensive high schools in which they operate. The significance of this finding for policymakers and practitioners interested in the Career Academy approach should not be underestimated. The implementation and ongoing operation of the Academies has required the effort and commitment of the many teachers, administrators, employers, and students involved with the programs. The similarities of the participating Career Academies gives this evaluation the opportunity to provide information about how the approach operates under a variety of settings, to produce reliable findings about its effectiveness, and to inform policy and practice related to the Career Academy approach in general.

Importantly, participating sites have also arrived at somewhat different versions of the Academy approach's structural features in response to local needs, capabilities, circumstances, and policies. The variation among sites offers insights into the flexibility of the Career Academy approach and how different versions of the approach lead to different opportunities for teaching and learning and, ultimately, to significantly different outcomes for students.

The structural characteristics of the Career Academy approach may be viewed as preconditions for improving students' performance and engagement in high school and their preparation for post-secondary education and employment. These characteristics, which result from policies and administrative decisions about how to allocate and organize existing and additional resources, are not by themselves, however, sufficient to produce such improvements for students.[2] Recent analyses of education policies indicate that school reform efforts must also focus on initiatives that facilitate the work of students and teachers in classrooms and other environments where the two groups are in direct contact with one another. To be effective, reform efforts must improve the quality of relationships, instruction, and learning that take place in classroom and non-classroom settings. Later chapters in this report, as well as future reports from the evaluation, will examine the extent to which the structural features of the Career Academies result in deeper changes in teaching and learning opportunities and, ultimately, in academic and occupational outcomes for students.

---

[1]Much of the information presented in this chapter is based on interviews with students, teachers, and administrators, and observations of Academy activities that occurred during the 1994-95 school year. Other information was collected during site selection. Because the programs and high schools are evolving, dynamic institutions, some of the characteristics described here may have changed since that time.

[2]Pauly, 1991; Sarason, 1990.

The first three sections of this chapter describe how the three primary structural features of the Career Academy approach have been implemented in the participating sites. The final section of the chapter examines factors and issues that affect the implementation and operation of the approach. This section also describes strategies that staff in the participating sites have used to address these issues.

I. School-Within-a-School Organization

As discussed in Chapter 1, the large size of many comprehensive high schools has undermined their capacity to support successful academic performance and facilitate the transition from school to adult roles for many students. Researchers have also documented how large comprehensive high schools have depersonalized the school experience by preventing teachers and students from forming productive relationships with each other and their colleagues and peers. In many high schools, for example, students have different classmates in each course, and never share a common classroom experience. This prevents them from forming any sort of supportive peer culture. Also, teachers rarely have the same students for more than one course or for more than one year, and do not often share the same group of students with other colleagues. This prevents them from having any input into the overall development of the students and from having any sense of teamwork.

In recent years, there has been a growing interest in creating smaller high schools, schools within existing high schools, and schools with a special focus. The goal of these efforts is usually to promote a more personalized relationship among students and teachers and to support other reforms and innovations that focus on giving teachers more control over school governance and the curriculum.[3] Career Academies have been pioneers in using a school-within-a-school structure to reduce the flux in students' school environment, facilitate teachers' capacity to meet their educational goals, and help students create strong peer support for learning. The school-within-a-school approach also provides opportunities for teachers to collaborate on their own professional development, as well as on the educational and developmental needs of their students.

In general, the participating Career Academies share several characteristics that define their school-within-a-school organization. Each Career Academy has:

- clusters of students who share several classes during the day and have the same teachers from year to year;
- clusters of teachers from academic and vocational disciplines who are scheduled to have mostly Academy students in their classes, who make a commitment to meeting with each other on a regular basis, and who share in decision-making related to administrative policies as well as curriculum content and instruction;
- a teacher or director who assumes lead responsibility for administrative tasks and usually serves as a liaison with the school principal and other administrators, school district officials, and employer partners;
- course offerings that are reserved for Academy students and are often block-scheduled during consecutive periods; and

[3]Hill, Foster, and Gendler, 1990.

- a classroom or group of classrooms within the high school reserved for Academy students and teachers.

Table 3.1 lists specific characteristics of the school-within-a-school organizations of the 10 Career Academies in the study.[4] The table shows that all of the Career Academies participating in this study have implemented some version of the defining characteristics of the school-within-a-school organization. The table also provides some insight into the variation among the Academies in the specific nature of these characteristics. These differences emerge in:

- the number of students and teachers in the program;
- the number of block-scheduled Academy classes students take each year;
- the frequency and agenda of the teacher team meetings and the extent of teachers' non-Academy commitments;
- the teaching responsibilities and administrative time available to the lead teacher or director; and
- the type of physical space available.

The differences among the 10 Career Academies reflect adaptations of the approach to local circumstances and capacities. They do not necessarily reflect relative strengths and weakness of one Academy over another. At this stage in the study, it is premature to make such judgments; future reports will discuss further analyses of changes in student outcomes.[5] For now, variation among the sites can be used to generate hypotheses about how differences in the basic structure of the Career Academy approach might promote different opportunities for teaching and learning and, ultimately, produce different outcomes for students.

The profiles on pages 39 and 40 describe two Career Academies and their versions of the school-within-a-school organization. These two profiles were chosen to illustrate many of the characteristics of a school-within-a-school organization that are common across the sites, as well as to highlight some of the key differences.

A. Alternative Versions of the School-Within-a-School

As the profiles illustrate, the school-within-a-school organizations of the Electronics Academy at Independence High School in San Jose, California, and the Health Professions Academy in Socorro, Texas, share several characteristics with each other and with most of the other Academies in the study. They each involve several teachers who teach only classes that are reserved primarily for Academy students. Teachers regularly spend planning time together and are responsible for some of the Academy's administrative tasks, such as planning special activities, creating and monitoring a budget for additional resources provided by the district or employer partners, and recruiting and selecting students for the program. Students share many of the same teachers and spend a substantial part of

---

[4]The two Electronics Academies are differentiated in tables with the use of "I" (for Independence High School) and "SC" (for Silver Creek High School).

[5]Even when such data are available, comparison of results across high schools is complicated by the fact that schools differ along many dimensions, not just in their Career Academies. As a result, any comparisons across sites should be interpreted cautiously.

Table 3.1

Career Academies Evaluation

Selected Characteristics of the School-Within-a-School Organization of Career Academies as of the 1994-95 School Year, by Site

Characteristic	Academy for Aerospace Technology, Cocoa, FL	Academy of Finance, Baltimore, MD	Academy of Travel and Tourism, Miami Beach, FL	Business and Finance Academy, Pittsburgh, PA	Electronics Academy (I), San Jose, CA	Electronics Academy (SC), San Jose, CA	Global Business Academy, Santa Ana, CA	Health Professions Academy, Socorro, TX	Public Service Academy, Washington, D.C.	Watsonville Video Academy, Watsonville, CA
Grade level and enrollment										
Grade levels of students	10-12	9-12	10-12	10-12	10-12	10-12	10-12	9-12	10-12	10-12
Number of students enrolled	134	190	130	150	105	96	152	180	124	130
Total high school enrollment[a]	1,451	2,057	2,816	775	3,908	2,145	3,066	2,030	640	2,216
Academy classes										
Number of Academy class periods scheduled for students by grade level[b]										
9th grade	--	4	--	--	--	--	--	6	--	--
10th grade	4	3	4	4	4	4	4	5	7	4
11th grade	5	3	4	3	4	3	4	6	5-7	4
12th grade	5	3	4	3	2-4	2	3	5	1-2	2
Two or more Academy classes are scheduled during consecutive class periods	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Average number of students in Academy classes[c]	18	29	30	25	22	24	25	20	25	23
Average number of students in other high school classes[c]	25	31	28	17	28	28	31	20	25	27

(continued)

BEST COPY AVAILABLE

Table 3.1 (continued)

Characteristic	*Academy for* Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	*Academy of* Travel and Tourism Miami Beach, FL	*Business and* Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
Academy teachers										
Total number of Academy teachers	8	13	7	7	4	4	6	11	9	6
Number who teach primarily Academy classes[d]	6	2	2	2	4	3	5	9	7	4
Number who teach both Academy and non-Academy classes[d]	2	11	5	5	0	1	1	2	2	2
Number who teach Academy classes in more than one grade level	8	3	2	3	4	2	5	8	7	3
Teachers have a shared planning period during the school day	yes	no	no	no	yes[e]	yes[e]	yes	no	no	yes[e]
Frequency of formal staff meetings	daily	monthly	quarterly	monthly	bi-weekly	bi-weekly	weekly	weekly	weekly	bi-weekly
Academy adminstration										
Teaching status of lead teacher[f]	no classes	no classes[g]	full course-load	extra planning period	extra planning period	extra planning period	extra planning period	full course-load[h]	no classes[i]	extra planning period
Academy has an administrative assistant	yes	yes	no	no	yes	yes	yes	no	yes	yes
Academy has a separate offic	yes	yes	no	no	yes	yes	yes	no	yes	yes
Academy classrooms are co-located	yes	no	no	no	yes	yes	yes	yes[j]	yes[j]	yes

(continued)

Table 3.1 (continued)

Sources: MDRC field research and the Career Academies Evaluation Teacher Questionnaire.

Notes: Where data are not applicable, dashes are used.

[a]Total high school enrollment is for the 1992-93 school year for the Academy for Aerospace Technology, the Academy of Finance, and the Public Service Academy; the 1993-94 school year for the Electronics Academies, the Global Business Academy, and the Watsonville Video Academy; and the 1994-95 school year for the Academy of Travel and Tourism, the Business and Finance Academy, and the Health Professions Academy.

[b]A Career Academy class is defined as one that was taught by an Academy teacher and reserved primarily for Academy students. In classes where class size requirement called for additional students, non-Academy students may have been included.

[c]Average number of students per class is based on self-reported information from the Teacher Questionnaire for sites that began random assignment in 1993. For the three Academies for which Teacher Questionnaire information was not available (Academy of Aerospace Technology, Business and Finance Academy, and Public Service Academy), self-reported information was used.

[d]Teachers were counted as teaching primarily Academy classes if more than half their classes were composed of mostly Academy students. At the Electronics Academies and the Watsonville Video Academy, where teachers had extra Academy planning periods, this period was counted as an Academy class.

[e]All teachers in this Academy, including the lead teacher, have an extra preparation period in addition to a shared planning period.

[f]In comparison with non-Academy teachers in the host high school, the Academy lead teacher has a full teaching load, has at least one additional planning/administrative period, or does not teach any classes.

[g]The Academy of Finance has two non-teaching staff who manage the administrative tasks of the Academy, a coordinator fully dedicated to the Academy, and an administrator who splits her time between two Academies in separate high schools.

[h]Two Academy teachers with full courseloads share the administrative responsibilities of the Academy. In the 1995-96 school year, one of the lead teachers had a reduced courseload.

[i]The Public Service Academy has non-teaching "executives on loan" fully dedicated to the administration of the Academy. In addition, a full-time teacher aids in administrative tasks.

[j]Beginning in the 1995-96 school year, 10 of the 13 classrooms in this Academy were co-located in one corridor.

The Independence Electronics Academy (San Jose)

Features of the School-Within-a-School Organization

In the 1994-95 school year, Independence High School in San Jose, California, was the twelfth largest in the United States, with an enrollment of approximately 4,000 students in grades 9 through 12 and a staff of over 300 teachers, counselors, administrators, and support personnel. The student population is diverse: 50 percent Hispanic, 35 percent Asian, and the remainder white, black, and other races. The 100-acre campus, which opened in 1976, contains a high school divided into three administrative and geographical units called villas. Each villa has its own principal, assistant principal, and counselors.

In the 1994-95 school year, the Electronics Academy at Independence High School had an enrollment of 105 students in grades 10 through 12 and a staff of four teachers and one administrative assistant. A counselor from one of the villas is assigned to work with the Academy students. In a typical year, approximately 35-40 students enter the Electronics Academy in the 10th grade. These students are divided into two smaller groups of approximately 20 students each who take their Academy classes together. The central hub for the Electronics Academy is located in a quadrangle of one-story buildings that each has two classrooms. Three of these rooms are devoted to the English, math, and science courses in the Electronics Academy. A smaller room, adjacent to the English teacher's classroom, serves as the Academy office and has a computer, phone, fax machine, copying machine, and other office equipment. The office is staffed by an administrative assistant. The electronics teacher's classroom is located a short distance from the other three classrooms.

School begins each morning at 8:00 a.m., but some students arrive as early as 6:30 a.m., when the English teacher opens her classroom for students to do homework, work on special projects, or get extra help. Other students congregate in the math or science teachers' classrooms. When a student is absent, the administrative assistant calls his or her home or contacts a parent at work to verify the reason for the absence.

In the 10th grade, Academy students are scheduled to take their English II, Algebra I, biology, and Electronics I classes together with Academy teachers during the daily morning periods. Several times during the school year, 10th grade Academy students attend assemblies at which local employers from the computer, electronics, or other high-tech fields speak about their work and the pathways that may lead to well-paying jobs. At least twice during the year, the 10th grade students visit one of these local employers.

In the 11th grade, Academy students are scheduled to take their English III, geometry, chemistry or physics, and Electronics II classes together. Also during the 11th grade, students are assigned employer mentors who meet with them regularly and let them shadow them at work for a day. During the summer after 11th grade, each student applies for a summer job with one of the Academy employer partners. They are assigned a work-based supervisor and are monitored by a school-based coordinator. These positions are arranged by a district-level coordinator, and the application process is administered by one of the Academy teachers.

In the 12th grade, these students are scheduled to take their English IV and Electronics III classes together, and students who have not already done so take chemistry or physics and Algebra II. Some students continue with their summer employment placements. Also during the 12th grade, the school counselor assigned to the Academy works with interested students to ensure that they take appropriate college entrance examinations and collect information and applications for various post-secondary institutions.

The four Academy teachers teach four classes each day (one fewer than most other teachers in the high school). In addition, they meet as a group two afternoons a week to discuss administrative issues, upcoming activities, problems particular students are having in and outside of class, and, less frequently, curriculum planning. The lead teacher serves as the primary liaison with the school district office responsible for the Academy and with the school administration. He is also responsible for monitoring the discretionary budget, which is funded by a combination of state, school district, and private contributions.

BEST COPY AVAILABLE

The Health Professions Academy (Socorro)

Features of the School-Within-a-School Organization

Since it opened in 1965, Socorro High School in Texas has had a reputation for providing a wide range of innovative vocational education programs. In 1988, two teachers established a sequence of two health occupations courses that would be offered to 11th and 12th graders and would link classroom activities with hospital-based internships. After several years, the teachers began to see that, while most of their students were very successful in their health occupations classes and internships, some were not earning enough course credits to graduate from high school, and others were graduating without adequate preparation for the further education and training required for advancement in the health field. In 1991, the teachers began to address these problems by working closely with the district's vocational education director, the high school principal, and the assistant principal in charge of course scheduling to establish a sequence of academic and vocational classes that would begin in the 9th grade.

The result of their efforts became the Health Professions Academy, a school-within-a-school that mirrors many features of the Career Academy approach but has been adapted to local needs and circumstances. For example, while all Academy students are scheduled to take the same sequence of academic and vocational classes, they do not necessarily take each of these classes with the same group of students. To accommodate students' choices of elective courses and different levels of academic classes, the program is set up so that they might take their Algebra I class, for instance, with one group of Academy students, and their English I class with another group. To accommodate special interests, such as a foreign language class that meets at the same time as the Academy science class, students may be scheduled to take a non-Academy science class.

The Academy has grown steadily since its inception, making it difficult to coordinate the course schedules for consistent groups of students in each of the four grades served by the Academy. Because classes include a mix of Academy and non-Academy students, teachers have difficulty giving special attention or providing cross-cutting instruction to the Academy students they share without neglecting the non-Academy students. Thus, the Health Professions Academy has made a conscious decision to forgo a high degree of group scheduling for Academy students to accommodate more students and greater flexibility in the courses they can take.

Despite this lack of group scheduling, the Health Professions Academy maintains a strong bond among its students and teachers through several others features of the school-within-a-school approach. Importantly, the teachers make a commitment to meeting as a group as frequently as possible to focus on student-related issues. The occupational theme serves as a unifying force through the health occupations classes, hospital work internships, and job shadowing experiences. To promote unity among Academy students and teachers, they are each issued a hospital lab coat with the Academy emblem. The Academy identity is highlighted throughout the school on a weekly basis when students and teachers wear these coats.

Finally, most Academy students are active in the school chapter of Health Occupations Students of America (HOSA) and its local, state, and national competitions, including public speaking, demonstrations of CPR skills, and responding to mock trauma situations. HOSA activities build unity among the Academy students and support their classroom experiences by reinforcing their common aspirations and expanding their knowledge of health professions. In addition, the teachers receive information and support through their involvement with a national network of health occupations educators.

their day with classmates who have a common interest in the occupational theme and in the other features of the Academy.

The profiles of these two Academies also illustrate some of the differences among the participating Academies. The Electronics Academy at Independence High School, for example, has relatively clear boundaries that distinguish the organization and scheduling of Academy classes, classrooms, and teaching responsibilities from those of the rest of the high school. Separate sections of English, math, science, and electronics classes are reserved primarily for Academy students in the 10th and 11th grades, and separate sections of English and electronics classes are reserved primarily for Academy students in the 12th grade. Roughly the same group of 20 or so Academy students in the 10th and 11th grades shares four consecutive classes each day. The location of three of the Academy classrooms and the Academy office in one part of the campus creates a hub for students and teachers to congregate both socially and for work. Four Academy teachers teach all the Academy subjects in classes held each day during four of the five morning periods, leaving them with one planning period in the morning and a shared planning period in the afternoon. The extra planning period each day, secretarial support, and a separate office provide the teaching team with the opportunity to assume responsibility for both administrative and instructional work.

The Health Professions Academy provides an interesting contrast. This Academy is large (serving 180 students, as compared to 105 in the Electronics Academy), and boundaries between it and the rest of the high school are less clear. Separate sections of English, math, social studies, science, and health occupations courses serve primarily 9th, 10th, and 11th grade Academy students, and separate sections of English, social studies, and health occupations courses serve primarily 12th grade Academy students. While all Academy students are scheduled to take the same sequence of academic and [illegible]onal classes, however, they do not necessarily take each of these classes with the same group of students because of the complexity of coordinating the course schedules for consistent groups of large numbers of students. Some classes include a mix of Academy and non-Academy students, making it difficult for teachers from several classes to coordinate lessons and activities for the Academy students they share without neglecting the others. In short, the Health Professions Academy has had to forgo a high degree of group scheduling for Academy students in order to accommodate more students and greater flexibility in students' course-taking.

Several factors have made it difficult for the teaching team at the Health Professions Academy to meet frequently as a group and to coordinate their curricula and planning. The program does not receive additional funding, for instance, to provide teachers with an extra planning period during the school day, and team meetings usually occur early in the morning before school. Until the 1995-96 school year, Academy teachers and their classrooms were widely dispersed throughout the school, and the staff relied on other department offices in the school for administrative support and materials.[6]

As discussed in the profile of the Health Professions Academy, a strong unity among its students and teachers is maintained through teachers' commitment to meet during non-school hours, common classroom- and work-based experiences in the health field, students' participation in Health Occupations Students of America, and outward symbols of community, such as wearing lab coats with the Academy emblem to school. Many of the Academies in the study employ similar strategies to promote cohesiveness.

---

[6]Beginning in the 1995-96 school year, most of the Academy teachers were assigned classrooms on the same corridor of Socorro High School.

B. Characteristics of the School-Within-a-School

Table 3.1 summarizes several key similarities and differences among the 10 Career Academies in the study. It focuses on four topics: grade level and enrollment; classes; teachers; and administration.

Grade level and enrollment. Table 3.1 shows that eight of the 10 Career Academies in this study begin in the 10th grade and the remaining two begin in the 9th grade. Several studies have found that the first year of high school, typically 9th grade, is a particularly difficult transition year for students and that a more supportive environment during this time can be an effective motivational tool, preventing students from dropping out and improving their performance in later years.[7] The teachers in Academies that begin in 9th grade also have the advantage of being able to work with students for all four years of high school.

As will be discussed in Chapter 4, however, the 9th grade Academies have the disadvantage of tougher student recruitment and selection procedures than most of the 10th grade Academies. The 9th grade Academies must recruit and select from several middle schools whose students have had no exposure to the high school and little or no exposure to Academy teachers or students. In general, the 10th grade Academies are able to recruit and select 9th grade students who have already attended the host high school.[8]

The table shows that Academies are embedded in high schools that vary tremendously in size. The enrollment of the host high schools ranges from 640 at Anacostia High School (host of the Public Service Academy in Washington, D.C.) to 3,908 at Independence High School (host of the Electronics Academy in San Jose). In general, the larger the high school, the less likely it is that Academy students will share teachers and classmates if they are not enrolled in the Academy.

Academy classes.[9] Table 3.1 shows that students take at least three or four Career Academy classes per year in their first two years and usually take fewer Academy classes in the 11th and 12th grades. Students in the 9th grade Academies are scheduled to take more of their classes within the Academy than are students in the 10th grade Academies. In all, students are scheduled to take between nine and 22 classes within the Career Academies over three or four years.

Each of the Career Academies has at least two classes that are scheduled in consecutive periods during the school day. This block scheduling facilitates Academy teachers' efforts to use this time more flexibly by combining classes or team teaching, although some Academy teachers have difficulty coordinating lessons and course content with other teachers because they have some non-Academy students in their classes. In general, the larger the number of consecutively scheduled Academy classes and the fewer the number of non-Academy students in them, the greater the opportunities for teachers to coordinate the content of their classes and the greater the flexibility in how they can use blocks of Academy class time.

---

[7]Felner, Primavera, and Cauce, 1981; Felner and Adan, 1989; Roderick, 1993.

[8]The Public Service Academy (Washington, D.C.) is an exception to this because its host high school (Anacostia High School) begins with the 10th grade.

[9]In general, a Career Academy class is defined as a class that is taught by one of the Academy teachers and is reserved primarily for Career Academy students. In some cases, however, Career Academy students do not fill an entire class section and non-Academy students are allowed to take the course.

Class sizes vary among the Academies; on average, they are only modestly smaller than non-Academy classes in the same high school. Previous research has shown, however, that reductions in class size of the magnitude indicated in Table 3.1 are not likely to result in significant changes in student achievement.[10] This suggests that class size is not a major factor that distinguishes the Academies from the regular high school environment.

Academy teachers. Table 3.1 shows that the each of the participating Career Academies includes a group of four to 13 teachers and that a core group of these teachers teach Academy students in two or more grade levels. This provides the opportunity for students to have the same teacher for two or more courses. Table 3.1 also shows that the Academies differ in the number of teachers and the balance between teachers' Academy and non-Academy teaching responsibilities. Academies with more teachers are able to serve more students and to expand their course offerings; however, the greater the number of teachers, the more difficult it is to schedule common planning periods for all the teachers during the school day. For example, the Health Professions Academy in Socorro and the Public Service Academy in Washington, D.C., included 11 and nine teachers, respectively, and were not able to provide these teachers with a common planning period during the school day. To collaborate on Academy-related issues, these teachers decided to meet on a weekly basis during non-school hours. Coordinating shared planning time for Academy teachers is further complicated by the fact the some teachers have non-Academy responsibilities. The majority of teachers in the Academy of Finance (Baltimore) and the Academy of Travel and Tourism (Miami Beach), for example, teach a substantial number of non-Academy classes and meet less frequently than teachers in other Academies. (Chapter 7 provides more detailed information about Academy and non-Academy teachers and the contrast between Academy and non-Academy work environments from teachers' perspectives.)

Administration. Each of the Academies has at least one staff person who plays a primary role in coordinating the administrative activities for the program. In seven of the 10 sites, this is a teacher who also has classroom responsibilities in the Academy; in five of these sites, the lead teachers have an extra planning period each day.[11] Four of the Academies — the Academy of Finance (Baltimore), the Academy for Travel and Tourism (Miami Beach), and the two Electronics Academies (San Jose) — receive managerial support from an administrator who oversees two or more Academies in the district and focuses on coordinating the partnerships with local employers. These administrators work directly with the Academies and do not have other administrative responsibilities in the district. In addition to their school-based lead teachers, each of the other six Academies is supported by administrators at the district level, but usually from within a department that is also responsible for other areas, such as vocational education.

---

[10]Glass et al., 1982.

[11]The Academy for Aerospace Technology (Cocoa) received a special start-up grant from the state of Florida to pay for an administrator during its initial implementation phase. Administration of the Academy of Finance (Baltimore) is handled by one of the high school counselors and by a director who also oversees the operation of a second NAF Academy in the district. The Public Service Academy (Washington, D.C.) relies on an "executive on loan" from one of the public agencies that serves as an employer partner with the program. The executive on loan typically takes a one-year leave of absence from his or her regular job to work at the Public Service Academy.

II. Curriculum Planning Around an Occupational Theme

The dichotomy between academic and vocational curricula is often seen as a structural weakness of high schools that undermines their capacity to help students make the transition from school to adult roles. Previous research has suggested that the separation of curriculum tracks has also created a false and unnecessary dichotomy between academic rigor and real-world relevance.[12] As noted in Chapter 1, in most high schools the curriculum is usually separated into classes for college-bound students and classes for those presumed not to be college-bound. This has been particularly problematic because it has perpetuated racial, ethnic, and class differences in education and labor market outcomes for students.

W. Norton Grubb, professor in the School of Education at the University of California, Berkeley, describes eight approaches to academic and vocational curriculum integration that differ in the degree to which they involve the full scope of the high school curriculum and are targeted toward education for work or education for college.[13] The simplest forms of curriculum integration involve efforts to infuse individual courses or groups of courses with both academic and vocational content. For example, vocational education teachers can incorporate more academic content into their classes, or teachers of academic subjects can incorporate occupational applications into their classes. One advanced version of this type of curriculum integration is a project-based course in which students (usually seniors) undertake an individual or group project that incorporates materials, methods, and skills from both academic and vocational disciplines. As described below, several of the Career Academies in this study have adopted this approach. Other, more comprehensive approaches involve more courses that are coordinated horizontally (that is, two or more courses, usually related to a particular project with an occupational theme, are taken within the same grade) or vertically (that is, two or more courses are related, and usually taught by the same teacher, across different grade levels). This coordination is referred to as curriculum alignment.

Other approaches (including the Career Academy) facilitate academic and vocational curriculum alignment by making other institutional changes, such as creating magnet schools, schools-within-schools, occupational clusters, career paths, or links to employers. These approaches usually involve more extensive teacher collaboration, formal curriculum development activities, and some coordination of school- and work-based learning activities. More advanced approaches involve four or five teachers who collaborate to create an entirely new approach to teaching and learning that virtually eliminates the distinction among subject disciplines both across and within grade levels. Such curricula usually focus on problem-solving situations within an occupational theme area and involve a broad range of abstract and applied knowledge. (For an example of this approach, see the Academy for Aerospace Technology profile, later in this chapter.)

In general, all of the Career Academies participating in this study have implemented some version of curriculum integration. MDRC researchers found that each of the participating Career Academies included the following elements of curriculum integration:

---

[12]Grubb, 1995; Berryman, 1991; Raizen, 1989; Resnick, 1987a; Dewey, 1916.

[13]See Grubb, 1995; Grubb et al., 1991. These approaches include: incorporating more academic content in vocational courses; involving academic teachers in vocational programs; making academic courses more vocationally relevant; curriculum alignment of both academic and vocational courses; senior projects; the academy model; occupational high schools and magnet schools; and occupational clusters, career paths, and majors.

- academic courses that meet high school graduation and college entrance requirements and occupation-related courses that focus on the career theme (see Table 3.2 for a list of courses offered within the Academies);
- shared planning time for Academy teachers to coordinate course content;
- employability skills that are taught in the vocational courses and in one or more academic courses;
- work-based learning opportunities for students that link classroom activities with a work internship with one of the local employer partners; and
- career and college counseling to inform students about options for further education and employment and the requirements for each.

Although Grubb refers to the "academy model" as a distinct approach to academic and vocational curriculum integration, in practice the Career Academies in this study incorporate features found in other approaches. The participating Academies differ in the extent to which they emphasize some of these features over others, including:

- the extent to which academic content is included in vocational courses and vocational content is included in academic courses;
- the degree of horizontal and vertical alignment of vocational and academic courses;
- the opportunities for collaboration among academic and vocational teachers; and
- the integration of work-based and school-based learning activities.

The differences among the 10 Career Academies reflect versions of curriculum integration that accommodate the capacities and interests of the teachers and the constraints and opportunities presented by their work environments. In addition, Academies and their courses vary considerably in curriculum materials, course content, and instructional strategies. As Grubb points out, it is possible for Career Academies to facilitate curriculum integration by bringing teachers together, creating professional development opportunities for them, and providing some basic institutional supports. However, the extent to which teachers actually collaborate and change curriculum content and instructional strategies depends on their willingness to work together and to give up traditional aspects of the conventional disciplines. Again, such differences do not necessarily reflect relative strengths or weaknesses of one approach over another; further analyses will assess the evidence on whether differing approaches produce different levels of improvement in student outcomes.

The profiles on pages 47 and 49 describe two Career Academies and their approaches to curriculum integration. The first profile highlights some of the strategies Career Academies have employed within a traditional school and curriculum structure, while the second profile illustrates a more comprehensive approach that requires a broad reform of curriculum alignment and classroom practice.

A. Alternative Approaches to Curriculum Integration

A project-based approach. In several respects, the Global Business Academy in Santa Ana (described in more detail in the profile) is typical of how many of the Career Academies in the study use the occupational theme — in this case, international business — to integrate academic and vocational

Table 3.2

Career Academies Evaluation

Academic Subjects and Occupational-Theme Classes Offered Within Career Academies as of the 1994-95 School Year, by Site

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
Academic subjects[a]										
Social studies	yes	yes	yes	yes	no	no	yes	yes	yes	yes
Science	yes	yes	yes	no	yes	yes	no	yes	yes	no
English	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Math	yes	no	no	no	yes	yes	yes	yes	yes	yes
Other[b]	yes	no	yes	no	no	no	no	no	yes	no
Titles of occupational theme classes										
Grade 9	--	Exploring Financial Careers	--	--	--	--	--	Health Care Science	--	--
Grade 10	Aerospace Technology Business Computers General Technology	Computer Science I	Tourism Studies	Business and Finance I	Electronics I	Electronics I	Computer Systems	Health Occupations I (2 periods)	Business Principles I Keyboarding Microcomputers	Video Academy 10
Grade 11	same as 10th	Financial Accounting Banking & Credit	Tourism Computer Applications	Business and Finance II Accounting	Electronics II	Electronics II	Computer Accounting	Health Occupations II (2 periods)	Business Principles II Street Law	Video Academy 11
Grade 12	same as 10th	Int'l Finance Securities Operations Advanced Computer Science	Geography/ Travel Destinations Marketing/ Business Management	Introduction to Banking and Computers	Electronics III	Electronics III	Economics of Business Ownership	Health Occupations III (3 periods)	none	Video Academy 12

Source: MDRC field research.

Notes: Where data are not applicable, dashes are used.

[a] All of these subjects are taught within the Academy, but not necessarily at each grade level.

[b] "Other" includes foreign languages or physical fitness.

BEST COPY AVAILABLE

The Global Business Academy (Santa Ana)

A Project-Based Approach to Integrating Academic and Vocational Curricula

Created in the 1991-92 school year, the Global Business Academy at Valley High School in Santa Ana, California, included approximately 150 students in grades 10 through 12 in the 1994-95 school year. Six teachers are involved in the program: a lead teacher, who teaches four Academy classes and has an extra planning period; four teachers who teach primarily Academy classes and at least one non-Academy class; and one teacher who teaches two Academy classes and three non-Academy classes. The four academic subject teachers have their own classrooms, and the two business teachers share a classroom with other business teachers in the high school. Four of the teachers have a daily common (not extra) planning period. The other two teachers cover fewer Academy classes and do not share this planning period with the others.

As part of their involvement in the Global Business Academy, students take three years of English, three years of social studies, and two years of math. In addition, they take a sequence of three business classes, all of which have an international emphasis: Global Business Computer Systems I & II (emphasizing keyboarding and Microsoft Works, Accounting Theory, Computerized Accounting (including co e work skills and job readiness), and Economics of Business Ownership and Marketing (including advanced computer applications). The Academy integrates academic subjects with computer training and exposure to the business world within a fairly traditional classroom structure (i.e., 50-minute classes, five days per week) and uses cross-disciplinary projects as means to solidify the mastery of academic knowledge and workplace competencies (such as time management and strategic planning).

The Global Business Academy has developed a three-year sequence of course offerings, and each grade's curriculum is organized around a major theme: Discover the World (10th grade); The Social Contract – Building Character, Building Community (11th grade); and Leadership and Responsibility (12th grade). The teachers have further divided the curriculum at each grade level into major units with sub-themes, identified collaborative projects for each unit, and, for each of the subjects taught in the Academy, identified what they will be teaching for that unit. For example, in the Middle East Unit in the sophomore year, Academy students learn about religion and society, and conflict and cooperation. In social studies class, they conduct a simulation of the Middle East Peace Conference. In English, they read from *The Arabian Nights*, Middle Eastern scriptures and mythologies, and Jewish and Moroccan short stories. In business class, students learn English skills for the workplace and listen to a guest speaker who discusses businesses in the Middle East. In algebra, they focus on solving problems using demographic and geographical statistics on the Middle East. This three-year "curriculum map" is the foundation for the Global Business Academy's curriculum integration effort.

During the 1993-94 school year, teachers in the Global Business Academy began involvement in the Partnership Academy Integrated Curriculum Development Project. During a summer session, the teachers developed a series of activities for the 10th grade English, social studies, math, and business classes focusing on the North American Free Trade Agreement (NAFTA). For the English class, students were assigned novels, poems, and short stories that dealt with relationships between the United States, Canada, and Mexico. Local employers visited the business classes to talk about NAFTA and its potential impact on their companies and the local economy. In the math classes, students reviewed economic indicators related to the labor markets in the United States, Canada, and Mexico. Finally, the social studies classes included material on the histories, cultures, and economies of the three countries. The unit culminated with an "action-based project" in which small groups of students prepared presentations about NAFTA and its potential effect on the United States, Canada, and Mexico.

The Academy sets learning goals or benchmark skills (e.g., research and fact-finding skills, skills in problem recognition and problem-solving, computer competency, etc.) for students to master throughout the year. Students are expected to use these skills to complete their culmination project, a cross-disciplinary, action-based project related to the grade level theme. Students work on the project over the course of several weeks and are expected to give a presentation on it to their classmates.

curricula. For example, the occupational theme is reflected in a series of three business-oriented courses that students take over three years: computer systems, computer accounting, and economics. This vertical integration of the courses is strengthened through two of the courses being taught by one teacher, who collaborates with the teacher of the third course. Students also take up to three academic courses each year (math, social studies, and English), and often have the same teachers for these subjects at least twice in three years. Importantly, like the teachers in many of the other Academies in the study, the academic and vocational teachers in the Global Business Academy meet on a regular basis to discuss the curriculum, as well as other issues.

In other respects, the Global Business Academy has gone beyond many Academies in developing several curriculum integration projects. For example, teachers also meet for one or two weeks each summer to focus specifically on curriculum development. During these workshops the teachers develop several strategies for integrating their curriculum horizontally – that is, coordinating the content of two or more courses within the same grade level. This usually begins with the teachers listing the topics and content they plan to cover during the school year and when they plan to cover them. They then look for opportunities to rearrange the sequence, and in some cases, the content of the material they want to cover so that topics that are related across subject areas can coincide. The Global Business Academy team further enhances the curriculum by dividing the school year into intervals, during which they relate topics to a different part of the world. During one quarter, for instance, teachers might focus on economics in Asia; during the next quarter, they might focus on economics in Latin America. The central theme helps to unify the Academy's academic and occupational classes and incorporate an international focus. The Global Business Academy's North American Free Trade Agreement project, which involved all the 10th grade business, English, social studies, and math classes, was the culmination of a year-long effort to teach and reinforce a variety of work-related skills — including communications, time management, goal setting, and so on — in several classes. Similar projects have been developed for Academy students in the 11th and 12th grades.

"**Virtual Learning.**" Another Career Academy has implemented an integrated curriculum that is quite comprehensive in its vertical and horizontal alignment. The profile in the box below describes the Academy for Aerospace Technology (Cocoa), which has implemented a unique and comprehensive approach to an integrated curriculum known as "Virtual Learning."[14] Virtual Learning provides a learning environment that breaks down distinctions among individual disciplines, facilitates team teaching and cooperative learning, and focuses on problem-solving and critical thinking.

Students and teachers share a single "classroom" throughout the day: 11th and 12th graders spend the equivalent of five periods and 10th graders the equivalent of four periods in the Academy. Students from the 10th, 11th, and 12th grades work in teams of five or six, and each teacher works with a larger group of students consisting of five or six teams. Each team is assigned to a work station with a table and chairs, computer, office supplies, and other resources, including textbooks and reference books.

The curriculum consists of Virtual Learning Activities (VLAs), which present students with problem situations for which they must develop solutions (there are always multiple solutions to each problem situation). Within each VLA students are asked to demonstrate competencies in math, science, English, and social studies by applying them to the problem situation. Teachers act as resources and facilitators in much the same way as project supervisors and expert consultants operate in high-tech-

[14]Penn, 1994.

The Academy for Aerospace Technology (Cocoa)

Integrating Academic and Vocational Curricula with Virtual Learning Activities (VLAs)

The Academy for Aerospace Technology, begun in the 1993-94 school year, is located on the east coast of Brevard County, Florida, the home of Cape Canaveral and the Kennedy Space Center. Supported by the State Department of Education, it is one of 25 Academies for Career Development and Applied Technology within the state. The Academy for Aerospace Technology serves approximately 120 students in grades 10 through 12, and is located in a 13,000-square-foot building in the northwest corner of Cocoa High School's 67-acre campus. The building houses two large computer labs, a science lab, a hydroponics lab, a production lab, a technology lab, a seminar room, a resource room, and work areas for staff. The architectural structure of the Academy is designed to mirror a work setting. The Academy director and teachers make sure that the 30 work stations in the computer lab are well equipped with hardware and typical business software packages: Each has a 486 IBM-clone and Windows, Microsoft Excel, Word Perfect, and Aldus Pagemaker.

A unique feature of this Academy is its commitment to an integrated curriculum and learning environment that encompasses block-scheduling, team teaching, classroom work stations, and cooperative learning. The Academy tries to recast the traditional roles of teachers and students; teachers are called "facilitators," for instance, and they are supposed to learn as much from students as students learn from them. Students have direct input into the content and process of their education.

The Academy facilitators have developed an integrated curriculum that is based on Virtual Learning Activities (VLAs) – problems that students must collectively work on by drawing from knowledge across several disciplines. VLAs begin with performance-based skills that students need to make a successful transition from school to work, which are described in the Secretary of Labor's Commission on Achieving Necessary Skills (SCANS). Academy students are divided into groups of five. For 11th and 12th grade students, the Academy classes are scheduled during a five-hour blocked period, and the learning groups spend that time working on the VLAs.

In one VLA entitled "Reach for the Stars," students are presented with a problem in which NASA has misplaced its maps of the solar system and cannot undertake any further Space Shuttle missions until the maps are replaced. The students' assignment is to research the creation of solar system maps and to create a scale model of the solar system for display. Teachers and students use a range of educational resources to complete this assignment, including textbooks, NASA documentation, and computer data banks. Students are expected to master skills determined by their individual learning plans in several content areas, including math, science, social studies, and English. For example, students studying applied mathematics are expected to solve problems involving basic operations, square roots, and scientific notation. Students in pre-calculus must demonstrate an understanding of the analytic geometry principles associated with the relevant relations and functions. Teachers complete an assessment checklist of criteria needed for mastery of the skill and content areas of each VLA, and students must achieve 100 percent mastery to receive a grade. Once the work is complete, the students receive an A; if the work is not complete or does not reflect adequate mastery of skills and content embedded in the VLA, the students receive an "incomplete" and are expected to continue to work until they receive an A.

Students help develop new VLAs and modify existing ones through a suggestion box system. The box is nearly filled every day, and within 24 hours teachers read the suggestions and respond to them during a daily 15-minute morning meeting. When MDRC site staff were conducting field research in Cocoa, for example, many students suggested that a deadline for a completed VLA be extended so that they would have more time to study for a final that they had to take the following week. After considering this request, the teachers granted the students' wish and extended the deadline.

nology workplaces. The Virtual Learning environment employs "authentic assessment tools," including portfolios, facilitator observations, peer evaluations, and self-evaluations. Students proceed at their own pace to achieve mastery over each outcome that they and their facilitator have agreed to in individual education plans. Students are also expected and prepared to meet state and district performance standards as measured by traditional standardized achievement tests and graduation requirements. The director and teaching team at the Academy for Aerospace Technology have developed careful documentation of how the Virtual Learning curriculum covers the district course requirements and standard skills.

B. Characteristics of Curriculum Integration

Although none of the other Career Academies in the study has yet reached the degree of curriculum integration of the Academy for Aerospace Technology, each has incorporated some level of academic and vocational content in its courses, implemented some degree of horizontal and vertical course alignment, facilitated teacher collaboration, and coordinated school- and work-based learning activities. The remainder of this section of the chapter describes how Academies incorporate academic and vocational content in their courses and how they attempt to coordinate the content of some courses within and across grade levels. A more detailed discussion of the work-based learning aspect of curriculum integration is presented in the next section of this chapter. Chapter 7 provides a more detailed description of the level of teacher collaboration found in the Academies and how it distinguishes them from others in the regular high school.

Course content. One way Academies integrate their curriculum is by strengthening individual courses to include both academic and vocational content. The participating Career Academies offer several examples of academic courses that incorporate occupational applications. For example, students in the Electronics Academy at Silver Creek High School (San Jose) take their math courses within the Integrated Math Program (IMP). IMP incorporates a variety of real-life problem-solving situations from business and technology as the basis for teaching about mathematical concepts and skills that cut across the traditional content areas of algebra, geometry, and trigonometry.

English teachers in several of the Academies relate issues in literature to the occupational theme. For example, an English teacher at the Health Professions Academy (Socorro) attempts to highlight the health-related issues in books such as *Frankenstein*, *One Flew Over the Cuckoo's Nest*, and *The Grapes of Wrath*. Other English teachers attempt to demonstrate how abstract skills can apply to real-world experience. An English teacher from the Academy of Travel and Tourism (Miami Beach), for example, developed a project in which students were asked to design a brochure advertising the local businessperson of the year banquet. Students were asked to use critical thinking and writing skills to create a brochure that would highlight the accomplishments of the honoree, get people from local businesses and community organizations to attend the event, and convey specific information about its time, date, and location. Other Academy English teachers incorporate into their classes employability skills such as résumé writing, preparing cover letters and business correspondence, and interviewing skills.

Social studies classes have also been modified somewhat to incorporate the occupational theme. For example, the Academy of Travel and Tourism (Miami Beach) offers a course in "travel destinations geography," which was developed by the NAF. In a world history course, a social studies teacher in the Health Professions Academy (Socorro) highlights many of the health-related crises and advancements in health care that have occurred at different points in history, and discusses how these events are relevant to today's world.

The vocational and occupational theme courses also incorporate academic content. For example, the electronics classes offered at the Electronics Academies (San Jose) require students to use problem-solving skills learned in algebra class to calculate the current, resistance, and amps of the various circuitry components they build as part of lab exercises. Writing skills are reinforced and applied in many business classes offered in each of the three business-related Academies, and the English and business teachers often collaborate on assignments for students. There is also a great deal of overlap between the science and health occupations classes offered in the Health Professions Academy (Socorro).

Curriculum alignment. As noted above, vertical curriculum alignment refers to the practice of coordinating two or more courses across grade levels. The primary manifestation of vertical course alignment for many of the participating Career Academies is in students having the same teacher for a sequence of two or three occupational-theme courses in a given discipline over the three or four years they are in the program. For example, the Health Professions Academy (Socorro) offers a sequence of four health occupations classes that have been developed and modified over eight years by the lead teachers for the program. The curriculum combines an introduction to a variety of occupations in the health field with specific classes focused on health-related areas, including biology, anatomy and physiology, and chemistry. The curriculum also includes lessons in specific skill areas, such as taking health histories, measuring vital signs, and checking blood sugar levels and pH factors. Most importantly, the course sequence includes a series of "job shadowing" visits, where students follow a staff person at a local hospital for a day during the 9th or 10th grade, and culminates with a full-year job rotation sequence for 11th graders and two formal cooperative work internships for 12th graders. Similar types of course sequences have been developed at the Electronics Academies at Independence and Silver Creek High Schools (San Jose), although they have not been integrated with work-based activities to the same degree.

The Academy of Finance (Baltimore) and the Academy of Travel and Tourism (Miami Beach) use occupational curricula that have been developed over several years by NAF teachers and curriculum specialists in consultation with employers (see Table 3.2). As part of their NAF affiliation, the Academies receive these curricular materials and the teachers participate in summer institutes to develop strategies for implementing them.

As noted earlier, horizontal curriculum alignment refers to the coordination of two or more classes within the same grade level. These classes are typically centered on particular projects that involve the vocational class and one or more of the academic classes. Not all of the Academies, however, have been able to develop projects similar in scope to the NAFTA project created by teachers at the Global Business Academy (Santa Ana).

Perhaps the most crucial factor that influences the extent of curriculum integration and curriculum alignment is the amount and quality of shared planning time for teachers. Some Academies receive additional funding for an extra daily planning period for teachers and for teachers to meet during the summer. In other cases, teachers must meet during non-school hours. Teachers from most of the Academies reported that they meet on a regular basis and use part of the time to plan curricula.

Another important factor that may affect curriculum integration is the extent to which Academy classes include non-Academy students. As noted earlier, in cases where Academy class sections are undersubscribed, it is often necessary to complete class rosters with non-Academy students. Academy teachers often have difficulty developing lessons and activities that cut across the curriculum in these cases.

III. Employer Partnerships

The third primary structural feature of the Career Academy approach involves the formal connection between the programs and local employers.[15] This aspect of the Career Academy approach reflects a response to increasing criticism leveled at high schools for being out of touch with the changing requirements of the workplace and with cognitive research about effective pedagogy for all students.[16] In addition, since only about one-third of high school graduates complete four-year college degrees, high schools have been called upon increasingly to supply the remaining students with adequate skills and clear pathways to high-wage jobs.[17] As a result, employers are being asked to play a much larger role in the employment preparation of high school students.

The Career Academy profiles on pages 53-55 provide concrete examples of how employers are involved with the programs in this study. The profiles of the Electronics Academy at Silver Creek High School (San Jose) and the Academy of Finance (Baltimore) illustrate the variety of roles that employers play in a Career Academy. The profile of the Watsonville Video Academy (Watsonville) shows how this program uses the community as a classroom.

Table 3.3 presents more specific information about the characteristics of employer involvement for each of the participating Career Academies.[18] The different dimensions of employer partnerships are discussed below.

A. Work-Based Learning Activities

Perhaps the most intensive aspect of employers' involvement with the Career Academies is their effort to provide students with practical, on-the-job learning experiences and to develop a range of employability skills in real work settings. The primary vehicle for providing work-based learning opportunities is an internship that takes place during the summer between 11th and 12th grade, or in the case of the Health Professions Academy, during the 11th and 12th grade years. While other school-to-work approaches struggle to create even a small number of work positions, many Academies have been able to develop them for 30 or more students per year.

The hiring process for most of the summer internships is similar to that of most entry-level positions. Employers provide the Career Academy with job descriptions and information about the number of positions available, job qualifications, and the application process. Students submit a list

---

[15]As discussed in Chapter 1, the primary focus of the study to date has been on the school-based components of the Career Academy approach (the school-within-a-school organization, the curriculum integration, and the student selection and enrollment process). Much less time has been spent collecting information about the Academies' employer partnerships and students' work-based learning experiences, because few students in the research sample have reached the point in the programs when these activities occur. As a result, the work-related aspects of the participating Career Academies are described in this section of the chapter in somewhat less detail than the school-based components. Future reports will provide more detailed information and findings on employers' roles in the Academies and students' work-based learning experiences.

[16]Raizen, 1989; Marshall and Tucker, 1992.

[17]William T. Grant Foundation Commission on Work, Family, and Citizenship, 1988; National Center on Education and the Economy's Commission on the Skills of the American Workforce, 1990.

[18]Some aspects of the organizing framework for this section of the chapter have been drawn from Pauly, Kopp, and Haimson, 1995, which provides a more general overview of employer participation in a broad range of school-to-work transition programs.

The Silver Creek Electronics Academy (San Jose)

Coordinating Employer Involvement for Several Academies

The Electronics Academy at Silver Creek High School is one of three Electronics Academies in the East Side Union High School District, which is located at the southern end of the Silicon Valley. This Academy, as well as the Electronics Academy at Independence High School, was established in 1985. A third Electronics Academy, located in Overfelt High School in San Jose, was created in 1990. These Academies have enjoyed strong support from a coalition of 15 Silicon Valley companies led by Applied Motors, Hewlett-Packard, IBM, Lockheed, Seimens, Siera Semi-Conductor, and Xerox.

Business involvement in the Academies has been established and sustained through a strong Operating Committee that includes representatives from six of the employer partners, the lead teachers from the three Academies, the principal of each high school, the district school superintendent, the district Director of Career Education, and a student representative from each Academy. The Operating Committee has subcommittees that focus on curriculum development, special events, and identifying new industry partners. The work of the Operating Committee and its subcommittees is organized by a full-time coordinator who is "on loan" to the school district from one of the industry partners. The coordinator serves as the liaison between the Academies and the industry partners and oversees the various employer roles. For example, the employer coordinator recruits mentors and develops summer internship positions, coordinates a job fair, and assists teachers in developing the curriculum and special activities that help students develop employability skills. The coordinator also attends some Academy team meetings, providing an outside, non-teacher perspective to issues that the team faces.

In accordance with state Partnership Academy funding requirements, local employers are required to match the state's funding contribution either directly or through in-kind donations. For the Electronics Academies, employers provide funding for the employer coordinator position and for Academy activities, and contribute computer hardware and software. In-kind contributions include presentations to Academy classes and assemblies, guiding students on field trips, and serving as mentors. Employers also pay students for summer internships.

Each of the key roles played by employers — participating on the Operating Committee, serving as mentors, providing summer jobs, participating in the job fair, assisting with curriculum development, and so on — requires a considerable contribution of time. For example, mentors are not left on their own to plan activities and develop mentoring relationships with students. Structured activities are set up to help build a relationship and understanding between the adults and students. Typically, students shadow their adult mentors at work, and in turn, mentors shadow students at school. At the job fair, students are given specific tasks to accomplish, such as interviewing business representatives for information about their companies, submitting résumés, and conducting mock interviews of other students.

In recent years, the Academies have faced severe challenges to their employer partnerships presented by a major recession in the Silicon Valley and the significant corporate downsizing that followed. With thousands of people losing their jobs, some employers have had to restrict the number of work-based learning positions for students and limit the amount of time their employees can contribute to the Academies. As a result, the employer coordinator, with help from the Operating Committee, has had to recruit a larger number of employers to continue the same level of support provided previously by fewer companies.

The Academy of Finance (Baltimore)

Multiple Roles for Employer Partners

The Academy of Finance, opened at Lake Clifton-Eastern High School in 1987, is sponsored by the National Academy Foundation (NAF) and is one of several magnet programs in the Baltimore City Public School System. More than 200 predominantly African-American students in grades 9 through 12 from across the city attend the Academy in this large comprehensive high school.

Local employers play many roles in the ongoing operation of the program. They were one of the principal initiators of the Academy of Finance and continue to take a significant part in overseeing the program, which is managed by a program director who is hired and financed through a business advisory group. Employers also give input on curriculum development and assist with teachers' professional development by providing them with summer work internships, and they offer job shadowing and career exploration activities for students and participate in "reverse shadowing" days (when they shadow students) at the Academy. In addition, the employer partners help recruit additional employers and provide funding for equipment, curriculum materials, and special activities.

Perhaps the most intensive contribution of the employer partners is the provision of distinctive summer internships for students. The large number of employer partners (approximately 30) spans the financial services sector, including commercial banks, brokerage houses, securities firms, accounting firms, the Federal Reserve Bank, and finance-related divisions of major firms. Internship sponsors typically provide one to three students with positions that require financial skills and knowledge, and entail considerable responsibility. For example, students may be assigned tasks such as data entry, research using published business statistics, research using software packages to develop data sets and graphics, and processing security sales and customer dividends. Internships frequently provide opportunities to participate in staff training on software packages, and as their computer skills increase, students may be encouraged to try their hand at programming.

Students select internship positions that interest them based on written job descriptions developed by the employer partners and the Academy director. They are matched with internships through an application and interview process that simulates actual job search and application procedures. This process includes writing a résumé, requesting placements, completing applications for internships, and interviewing for those positions.

Students have the opportunity to work with staff on real tasks. As one student noted in his written evaluation of his experiences, "Throughout the summer, I learned the importance of teamwork in a place of business, how all the little parts come together to form a whole. Although I was the lowest step on the ladder, I felt just as important as all my co-workers." Students also participate in periodic luncheon seminars provided by one of the employer partners that focus on life skills — such as budgeting or acquiring and maintaining (and not abusing) credit — or a particular type of job within the finance industry. For at least one student, the critical aspect of the seminars was the opportunity to network. "I met a lot of new people and had a chance to talk to some of the old people whom I had already met. The more I do it, the easier it becomes."

Each intern's daily activities are monitored by a supervisor who works in the student's department. These supervisors meet regularly with students and provide exposure to other parts of the firm. In addition, an internship coordinator, usually someone from the firm's human resources department, meets with the intern periodically to ensure that he or she is benefitting from the placement. Both the coordinator and the supervisor work closely with the Academy director to ensure that the student is profiting from the learning opportunities offered through the internship. Students are evaluated by their supervisors on their performance and are asked to write a paper describing their experiences.

The Watsonville Video Academy (Watsonville)

Using the School and Community as a Workplace

The Watsonville Video Academy at Watsonville High School is located in a rural, agricultural region about 60 miles south of San Jose, the closest major urban area. The largest of the two major public high schools in the school district, Watsonville High School serves over 2,000 students. About 80 percent of the student population is Latino, and for many, English is not the primary language spoken at home. In addition, a large proportion of students come from families where one or both parents did not complete high school. The 1989 earthquake, a major flood in 1995, and a recession have created financial difficulties for the town of Watsonville and the surrounding area, which has put pressure on school financing.

The Video Academy, which began in 1990, has developed into a college-preparatory program that attracts a wide cross-section of students throughout the school. This Academy — a partnership between the states, the city, the school district, the County Regional Occupational Program, and the Watsonville business community — has been an oasis within the school, attracting community support from a variety of sources while building a technological resource base at the school. The Academy has received much of its support from the City of Watsonville and from the Pajaro Valley Chamber of Commerce. Since there are few large employers in the area, the Academy has formed many non-traditional partnerships with many small businesses for mentoring and work-based internship placements for students.

The Video Academy has found innovative ways for students to build and use the skills gained in classes and in the community:

- The Academy produces a school television news program that covers local community and school events. The Academy students plan and produce the programs, which are broadcast over the school cable system.
- The Academy students write and publish the high school's monthly newspaper. Because of financial difficulties, the school had discontinued publishing the student newspaper; now the Academy has revived it, and seniors in the Academy's English classes gain valuable journalism experience while providing a service to the school and community.
- The Academy has also been asked to create and develop public service videos for the community. Examples include a "bloodborne pathogen" training video used by the medical community; an employee safety training video developed for a major beverage manufacturer; a documentary on the creation of a local library; and a series on water conservation practices. Many of the videos, which are produced in English and Spanish, are given to the local library for public use, and local nonprofit agencies and the City of Watsonville also distribute them. Money generated by these videos is placed in a college scholarship fund for students who graduate from the Academy.

As a result of these activities, students in the Video Academy are comfortable making presentations to groups of people and in front of a camera, and they have learned to work in groups with little or no adult supervision. The Academy students have become a resource to both the school and the community.

Table 3.3

Career Academies Evaluation

Selected Characteristics of Work-Based Activities and Employer Partnerships as of the 1994-95 School Year, by Site

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
Work-based activity										
When work-based learning activities typically occur[a]	10th, 11th, and 12th grade	summer after 11th grade	summer after 11th grade, 12th grade	summer after 11th grade	summer after 11th grade	summer after 11th grade	summer after 10th or 11th grade	during 11th and 12th grade	summer after 11th grade, 12th grade	summer after 10th or 11th grade, 12th grade
Total number of work positions in 1994-95 school year (including summer 1995)	134	59	39	14	25	12	24	62	39	45
Total number of employers providing work positions	5	33	54	5	15	15	12	3-5	6	40
Students are paid for work experience	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
Students receive school credit for work experience	yes	no	yes	no	yes	yes	yes	yes	yes	yes
Work experience has a classroom-based component	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Employer partnerships										
Academy has a non-teaching coordinator responsible for employer involvement	yes	yes	yes	no	yes	yes	no	no[b]	yes	yes
Academy has an employer advisory board	yes	yes	yes	yes	yes	yes	no	yes	yes	yes

(continued)

BEST COPY AVAILABLE

Table 3.3 (continued)

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
Other employer roles										
One of the principal initiators of the program	no	yes	yes	yes	no	no	no	no	yes	yes
Co-manage the program[c]	no	yes	no	no	yes	yes	no	no	yes	yes
Provide input on curriculum	yes	yes	yes	no	yes	yes	no	no	no	yes
Act as mentors for students	yes	yes	yes	no	yes	yes	yes	yes	yes	yes
Provide job shadowing or career exploration activities	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Provide resources for field trips, speakers, and special activities	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Help recruit other employers	yes	yes	yes	yes	yes	yes	no	no	yes	yes
Help recruit/screen students for school program	no	no	no	no	no	no	no	no	no	yes

Source: MDRC field research.

Notes: [a] Work-based learning activities include experiences such as paid and unpaid internships and community service. Activities such as job shadowing and field trips are not included.

[b] This Academy has a teacher with non-teaching time specifically for coordinating employer involvement and co-op placements.

[c] "Co-manage" means that employers have some policymaking and administrative responsibilities, such as helping to set student selection criteria, determining curriculum content, and allocating state, district, and employee contributions.

of positions in which they are interested to the Academy staff, who then work with an internship coordinator to match students with appropriate positions. Students are then asked to complete an application, submit a résumé, and (if the employer is interested) attend an interview.

Most Academies have set threshold criteria that students must meet in order to qualify for an internship. This usually includes having enough credits to be on schedule for graduation, adequate performance in their Academy classes, and a lack of attendance or disciplinary problems in the current semester.

Where possible, internship placements are designed to expose students to a range of occupations and positions within a firm. Most of the internships are paid positions, and salaries are generally consistent with those of other students' summer jobs.

Students and teachers report that internship experiences have provided students with opportunities to apply the occupational skills and generic work habits learned in the classroom. In a few cases, students' work-based learning placements are closely coordinated with a classroom-based component. For example, a cornerstone of the Health Professions Academy (Socorro) is the Health Occupations Co-op class in which students spend at least 10 hours per week on the job and attend class each day to discuss their experiences and do work-related projects. In other Academies, students receive course credit for their work-based activities and are asked to write papers on and evaluations of various aspects of their experiences.

B. Other Roles Played by Employer Partners

As shown in Table 3.3, employers play a variety of roles beyond that of supplying work-based learning opportunities for students. These roles include providing advice on curriculum development, speaking in classes or at student functions, hosting student field trips, allowing students to shadow them on the job for a day, serving as mentors, and contributing resources to the program.

Although the employer partners associated with most of the Career Academies provide advice, services, and resources, they do not typically advocate specialized training to meet the needs of particular institutions or even particular jobs. Instead, they have expressed a greater interest in helping students develop strong, generic employability skills and maintain a broad range of career options. Another important role they play is simply showing students that the larger society cares about them by making the effort to come to the school and take time with them outside the classroom. These adults can become significant people in students' lives.

It is important to note that, as of the 1994-95 school year, not all the Career Academies in this study had implemented all of these employer partnership activities. Some were in the midst of planning and implementing mentor programs, and others were still trying to develop a larger number of internship positions for their 11th grade students (their plan is to have all eligible students engaged in their internships in the summer between 11th and 12th grades). Further research will update the progress of these efforts.

C. Coordinating Employer Partnerships

Involving local employers in high schools requires an extraordinary commitment of time and energy. In most of the participating sites, this is coordinated through the efforts of a school- or district-level staff person and through an employer advisory board. These are described briefly below.

Employer coordinators. Each of the Academies has a staff member who serves as the primary liaison between the program and the employer partners. Table 3.3 shows that seven of the Career Academies have non-teaching coordinators responsible for employer involvement. In four of these sites, this administrator has responsibility for employer involvement in two or more Academies (funding for these administrators is provided by the employer partners). The three remaining Career Academies rely primarily on teachers who have other classroom responsibilities.

Advisory boards. As was highlighted in the profile of the Electronics Academy at Silver Creek High School (San Jose), the Academy's employer involvement is often sustained by an employer advisory board or committee, which helps to keep the Academy focused on the needs of the labor market and provides modest funding and materials for the Academy. As is the case in many districts with multiple Academies with the same theme, the Electronics Academy Advisory Committee provides oversight and support for three Electronics Academies in the district. Such committees provide a unique forum for employer partners and school representatives to keep each other informed about strategies for combining classroom- and work-based learning activities. Employer representatives often provide the Academy teachers with advice and expertise on the relevance of the Academy's curriculum to the industry theme.

IV. Summary

A primary conclusion of this chapter is that each of the participating Career Academies shares the basic structural elements of the Academy approach. This is not surprising since a primary goal of the site selection criteria and process was to identify Academies in a range of settings and from several major Academy networks, each with its own characteristics, history, and identity. In addition, however, each site arrived at its particular version of the Academy approach somewhat differently and places different levels of emphasis on each element. The descriptions of the various Career Academies suggest several key factors that affect the implementation of these structural features, including the following:

- resources (e.g., for extra shared planning time for teachers, smaller classes, materials, extra-curricular activities, and administrative support);
- leadership and expertise provided by a lead teacher or Academy director;
- support from school and school district administrators;
- structured time and support for teachers to meet regularly;
- staff time to coordinate employer involvement and work-based learning placements;
- varied contributions from local employers; and
- a mission that links locally perceived employment needs with a distinct program design.

An important goal of the Career Academies Evaluation is to gain a better understanding of how these factors affect the implementation and ongoing operation of the programs. Data are being collected through regular contact with the sites and through field research visits that include interviews with teachers, students, and administrators as well as observations of Academy classes and activities.

Future reports will provide updated information on the evolution of the participating Career Academies and examine how they differ from the regular host high school environments around them.

Finally, as noted at the outset of this chapter, the structural features of the Career Academy approach distinguish them from most high school environments. As such, they represent some of the conditions that may be necessary for further changes in the educational experiences and post-secondary educational career outcomes of students. At the same time, however, simply modifying the structure of high schools may not be sufficient to bring about changes in the interpersonal relationships and opportunities to learn that are more likely to affect student outcomes directly. Later reports will examine the extent to which the Career Academy approach has actually changed these aspects of the high school and whether these changes have resulted in improved student outcomes.

CHAPTER 4

THE STUDENT RECRUITMENT AND SELECTION PROCESS

An essential feature of the Career Academies is their voluntary nature. Students apply for and enroll in them by choice; they are not assigned or required to participate in them. To help ensure that this choice is an informed one, the Career Academies provide information about the program to students, parents, teachers, and counselors and engage students in an application and selection process. This chapter describes the process by which students were recruited, applied to, and were selected for participation in the Career Academy programs during the study. While all Career Academies employed broadly similar strategies for identifying and selecting students, there was also variation among sites.

The information in this chapter, and in Chapters 5 and 6, is particularly relevant because the growth of the Career Academy movement has been accompanied by debate over which students the Academies should serve and which students can benefit most from participation in them. The original Philadelphia and California Partnership Academies were designed to be dropout prevention programs and were explicit in their efforts to target students who appeared to be at high risk of dropping out of high school. In fact, the original legislation that established state funding for the California Partnership Academies was quite clear in its intent to focus on "educationally disadvantaged high school students," defined as "students who are at risk of dropping out of high school."[1]

For a variety of reasons, the original programs, as well as the Academies that have been created more recently, have sought to expand their recruitment efforts to include students who are perceived to be less disadvantaged than the original target population.[2] One important reason for this shift has been the stigma associated with serving low-achieving students exclusively and the perception that the Career Academies were not a vehicle for providing students with a pathway to college. By including a broader mix of students, the Academies sought to dispel the perception that the programs were only for "low-track students," to build school-wide support by showing that an Academy would be appropriate for all students, and to promote mutual support among high- and low-achieving students.

A second reason for expanding recruitment efforts has been a continued increase in labor market demand for more highly skilled workers. In response, the Academies have placed even greater emphasis on preparation for post-secondary training and college as part of their mission of supporting students' transition from school to work. In addition, Academy teachers and employer partners have become more reluctant to target students who are already well behind schedule to graduate from high school (for example, those who have failed several courses required for college entrance, such as algebra, English, and science).

A third reason for broadening the Academies' target population has been that as resources for Career Academies (from both public and private sources) have been considered for cuts, Academies have come under increasing pressure to produce evidence of their effectiveness. One response has been for the Academies to focus more on students who are more likely to succeed in high school and to go on to college.

---

[1]Stern, Raby, and Dayton, 1992.

[2]Stern, Raby, and Dayton, 1992; Pauly, Kopp, and Haimson, 1995. This trend has also extended to other school-to-work programs.

Previous research on Career Academies did not address questions about the relative effectiveness of the Academies for different groups of students and did not include programs that were emphasizing college preparation. An important goal of the Career Academies Evaluation, therefore, is to provide reliable evidence about both of these issues. Through its site selection process, MDRC tried to target Career Academies that are most likely to include a substantial number of students who appear to be at risk of dropping out. At the same time, each of the participating Academies was clear about its desire to include a broad cross-section of students and was explicit about its goal of enhancing students' access to college.

The present chapter describes the strategies sites used to recruit and select students for participation in Career Academies. This information provides a context for understanding which students become involved in the programs (the subject of Chapter 5) and their patterns of participation in them (the subject of Chapter 6). Figure 4.1 illustrates four key stages in the Academies' student recruitment and selection process:

- marketing the Career Academy program and recruiting students to apply;
- students' application for admission to the Academy;
- screening students for eligibility and appropriateness; and
- selecting students for admission through random assignment and working to gain their commitment to participate.

These steps are described in the remainder of this chapter.

The chapter also provides background information about how the requirements for conducting random assignment for the evaluation were incorporated into the Academies' existing recruitment and selection processes. This study demonstrates the feasibility of conducting a random assignment evaluation of an ongoing high school program — a process that was quite challenging and required close collaboration between MDRC and staff from the sites to implement the necessary procedures. The goal of this collaboration was to minimize changes to the existing selection criteria and process, preserve the integrity of the research design, and ensure the ethical treatment of the students.

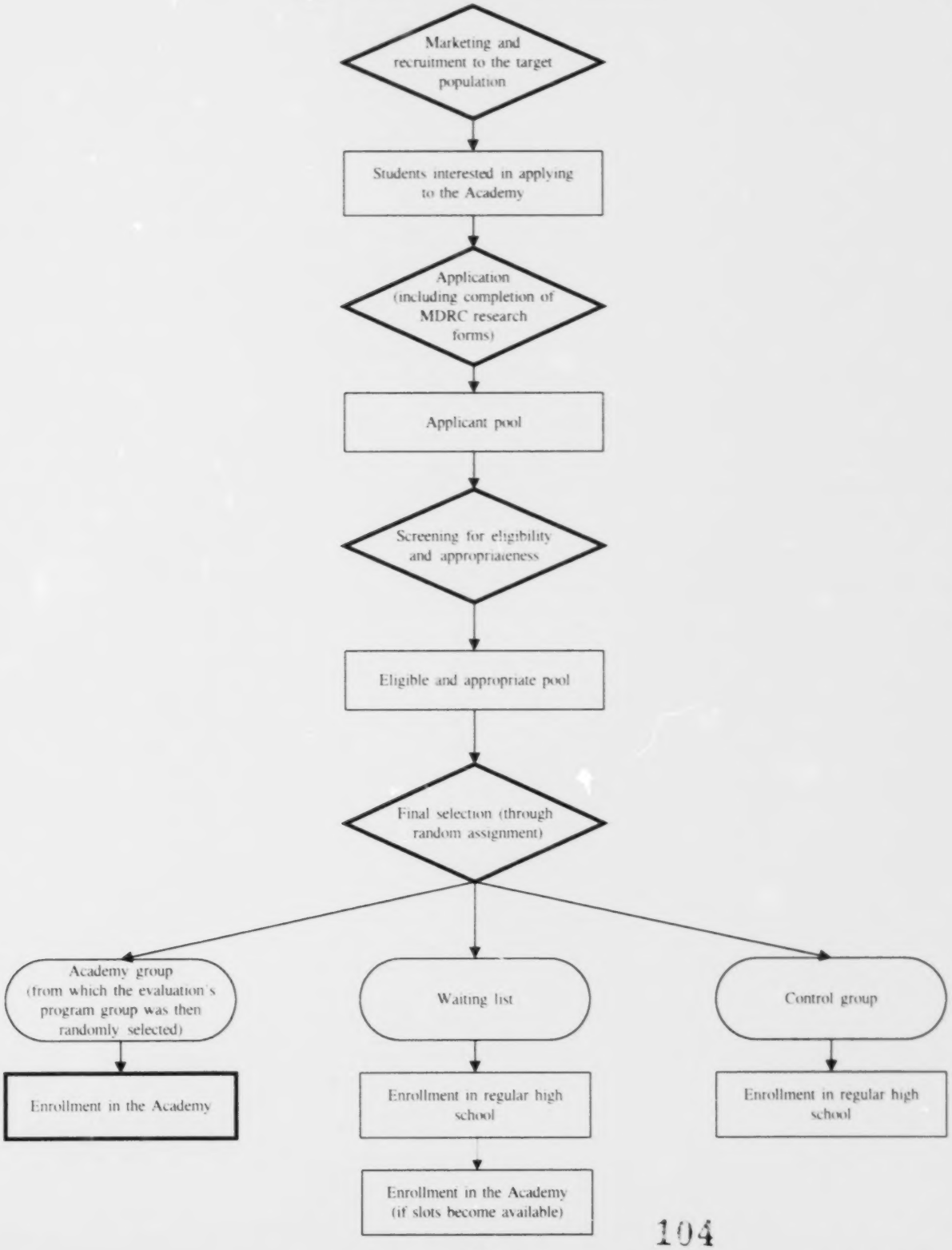
First, the sites had to design and implement a range of new marketing strategies that made information about the Career Academies widely available to students. These efforts led to a significant expansion in the number of students who expressed an interest in and applied to the programs. Second, the sites had to modify their application process to accommodate two important requirements of the research design: informing students and their parents about the study and having students complete a Student Baseline Questionnaire on their background characteristics and prior experiences in school. Third, the sites had to establish formal procedures for notifying students about their admittance into the programs (in cases where such procedures were not already in place) and for building their commitment to participate in the program in the coming school year. As with any study of an ongoing program, there are important issues about whether the research affected program operations. This is discussed at the end of the chapter.

I. Marketing and Recruitment

Because participation in Career Academies is voluntary, students must be given enough information to make an informed decision on whether to apply. Therefore, it is important that staff

Figure 4.1

Career Academies Evaluation
Simplied Model of the Student Recruitment and Selection Process
of Participating Career Academies


Marketing and recruitment to the target population
Students interested in applying to the Academy
Application (including completion of MDRC research forms)
Applicant pool
Screening for eligibility and appropriateness
Eligible and appropriate pool
Final selection (through random assignment)
Academy group (from which the evaluation's program group was then randomly selected)
Waiting list
Control group
Enrollment in the Academy
Enrollment in regular high school
Enrollment in regular high school
Enrollment in the Academy (if slots become available)

make a concerted effort to disseminate information about the programs to them and their parents, along with the teachers and counselors. Table 4.1 shows the key features of the recruitment and marketing process that each site tailored to its target population of students. This section of the chapter describes these marketing and recruitment strategies and how they were developed and implemented.

A. Target Population

In general, the participating Career Academies target virtually all the students in the grade level below the one at which they start. Thus, the recruitment and selection process occurs during the spring semester prior to the school year when students are scheduled to enroll in the programs. For example, Academies that begin in the 9th grade recruit and select students during the spring of their 8th grade year. Similarly, Academies that begin in the 10th grade recruit and select students during the spring of their 9th grade year. The primary reason for this is that in most high schools, the scheduling for class and teaching assignments for each school year occurs during the spring semester of the previous school year (or, at the latest, during the preceding summer). This scheduling process enables students to start their 9th or 10th grade year in the Academy rather than having to transfer later in the year.

The timing of the recruitment process, however, means that students are asked to begin thinking about their plans for the following school year approximately nine months ahead of time. At this point in the school year, many 9th grade students are still making the adjustment to high school, and 8th grade students (and 9th graders in junior high schools) have had no exposure at all to the high school. As a result, students and their parents are likely to be focused on the current school year, and staff may find it difficult to engage them in an extended application process that concerns the coming school year.

Finally, the Career Academies in this evaluation were asked to recruit approximately twice as many students for the programs as there were available program slots. As discussed in Chapter 2, an important consideration during the site selection process was whether staff from the prospective Academies and high schools felt that there were more students who would be eligible and appropriate for the Academies than there were program slots. All of the participating sites expressed confidence that this was the case. In sites that had not had an excess of demand for the program in the past, staff felt that this was largely due to lack of information about and exposure to the Academy, and that with some additional resources and technical assistance they would be able to identify at least twice as many qualified applicants as they could serve.

B. Recruitment Strategies

Table 4.1 shows that the Career Academies in this study used multiple methods to disseminate information, including assemblies, visits to regular high school classes by Academy teachers and students, mass mailings, public announcements, and individual contacts. To help sites increase their applicant pool, MDRC provided the Academies with resources and technical assistance for additional recruitment and selection activities as part of the overall research grant. Although MDRC asked the sites to develop a budget itemizing the additional recruiting costs, they were given considerable flexibility in how they chose to use these additional resources. In addition, MDRC contracted with a professional marketing firm to provide each of the sites with technical assistance in developing recruitment and marketing strategies and materials. Again, sites were given considerable flexibility in how they made use of the marketing consultant. Sites that wished to do so were also allowed to use part of the site grant to pay for additional technical assistance from the marketing consultant beyond that provided by MDRC.

The Career Academy profiles on pages 68 and 69 provide descriptions of the recruitment and marketing activities employed by two of the participating sites. Although these profiles have much in

Table 4.1

Career Academies Evaluation

Target Groups and Marketing Strategies of Career Academies

Site	Group Targeted for Recruitment	Marketing Messages	Marketing Strategies
Academy for Aerospace Technology (Cocoa, FL)	All 9th graders in the host high school and 9th graders in four local junior high schools	• Interesting studies tied to practical experience. • College preparatory program.	• Newspaper advertisements and public service radio announcements. • Presentations in 9th grade classes. • Mailings of brochures to 9th graders.
Academy of Finance (Baltimore, MD)	8th graders with average grades of 75 or above in 26 middle schools[a]	• Prepare for college and gain valuable employment skills. • Opportunity for on-the-job training and internships at local businesses. • Specialized college-level finance courses.	• Presentations at all 26 middle schools. • Mailings of brochures to interested applicants. • Middle school field trips to visit Academy. • Citywide application information for all specialized high schools and programs.
Academy of Travel and Tourism (Miami Beach, FL)	All 9th graders in the host high school	• Subject matter tied to real-world experience. • College preparatory classes. • Assistance with summer job placements. • Mentoring program. • Connection to network of NAF Academies.	• Mass mailing of brochures to each 9th grader. • Presentations in English and ESL classes. • Posters hung through the school and closed circuit television reminders broadcast. • Notices in teacher mailboxes. • Incentives for completed applications.
Business and Finance Academy (Pittsburgh, PA)	All 9th graders in the host high school	• Individual attention and assistance. • Supportive atmosphere. • Summer internships.	• Luncheon for all middle school counselors. • Presentations in 9th grade classes. • Posters hung and brochures distributed throughout high school. • In-person follow-up with individual students who expressed an interest in the Academy.
Electronics Academy (I) (San Jose, CA)	All 9th graders in the host high school	• Smaller classes and individual attention. • Success tips and advice from adult mentors. • Summer internships.	• Mass mailings of brochures to 9th graders. • Presentations by counselors, teachers, and students at 9th grade seminars and STAR (at-risk) classes. • Incentives for current Academy students to recruit applicants.

(continued)

Table 4.1 (continued)

Site	Group Targeted for Recruitment	Marketing Messages	Marketing Strategies
Electronics Academy (SC) (San Jose, CA)	All 9th graders in the host high school	• Smaller classes and individual attention. • Success tips and advice from adult mentors. • Summer internships.	• Presentations in all health/safety classes. • Longer orientations for interested students. • Posters hung throughout the school. • Staff luncheon for teachers, counselors, and administrators to orient them to Academy's mission. • Presentation and direct contact by current Academy students.
Global Business Academy (Santa Ana, CA)	All 9th graders in the host high school	• "Fast track" or "head start" to college or career. • Smaller classes and individual attention - part of "global family." • Assistance with summer internships. • Success tips and advice from adult mentors. • Interesting international studies and field trips.	• Presentations in English classes. • Staff luncheon for teachers, counselors, and administrators to orient them to Academy's mission. • Posters hung throughout the school. • Fliers and brochures distributed through the school.
Health Professions Academy (Socorro, TX)	All 8th graders in feeder middle schools	• "Fast track" or "head start" to college, technical school, or military • Smaller classes and individual attention - a sense of belonging. • Interesting studies with hands-on practice. • Work experience in health care and paid internships. • Success tips and advice from adult mentors.	• Mailings of brochures to 8th grade students. • Presentations in 8th grade science classes. • Appreciation dinner for middle school and Academy staff. • Posters hung throughout the school.
Public Service Academy (Washington, D.C.)	All 9th graders in 17 junior high schools and the host high school	• Family-like atmosphere. • Opportunities to learn through field trips to government agencies, job shadowing, summer school, and school-year internships. • Assistance in preparing for SAT exams, applying to college, and finding financial aid.	• Presentations by staff and students to all 9th graders in 17 junior high schools and follow-up by counselors. • Work with small groups of students to assist in completing Academy applications. • Open House for counselors, interested students, and parents.
Watsonville Video Academy (Watsonville, CA)	All 9th graders in the host high school	• Smaller classes and teachers with a personal interest in students. • Students learn video technology and advanced computer skills. • Students work on local news program and newspaper. • Assistance with summer job placements. • Local business mentors. • Gain knowledge and skills for college or job placement.	• Lunch presentation to 9th grade teachers and counselors. • Announcements made and posters hung throughout the high school. • Presentations in 9th grade math and English classes by Academy teachers and students.

Source: MDRC field research.

Note: [a]In the 1994-95 school year, this Academy also recruited 9th graders from the host high school to increase the size of the 10th grade Academy class in the 1995-96 school year.

common, they were chosen to illustrate some of the key differences in recruitment activities that were observed across the 10 sites in the study.

The Academy of Travel and Tourism (Miami Beach) is typical of the sites that begin in the 10th grade and draw students primarily from the high school in which the Academy is located (for a detailed profile of this Academy, see the box below). In all, seven of the high schools in this study begin in the 9th grade, and their Career Academy programs begin in the 10th grade. Thus, the primary target population of students is already enrolled in the high school. As a result, recruitment efforts are focused within the school, and Academy teachers and counselors responsible for recruitment are immediately accessible to prospective applicants, and vice versa. Under these circumstances, information about the Academies can be disseminated efficiently and applications can be collected easily. In addition, if students want further information about the Academies, they can go to staff who are at the same school. If students are late in submitting application material, Academy staff can make personal inquiries without having to travel to another school or work through a teacher or counselor at another school.

The staff from the Academy of Travel and Tourism made an effort to disseminate information to all 9th grade students at Miami Beach Senior High School. They also made presentations about the benefits of participating in the Academy to as many 9th grade students as possible by visiting classes. In many cases, Academy students also participated in these presentations, and staff reported that these students' personal contact with prospective applicants was key to successful recruitment efforts. Many of the applicants already knew several students in the Academy and were somewhat familiar with some of the teachers, classrooms, and activities.

The Public Service Academy (Washington, D.C.) also begins in the 10th grade, and it draws students from several junior high schools (which include students in grades 7 through 9) because the host high school does not start until in the 10th grade.[3] (For more detailed information, see the box profiling this Academy, below.) As a result, recruitment efforts for the Public Service Academy are quite similar to those used by the Academy of Finance (Baltimore) and the Health Professions Academy (Socorro), which begin enrolling students in the 9th grade and must draw students from several middle schools (which include students in grades 6 through 8). In these sites, Academy staff who are responsible for recruitment must work through counselors or teachers in several other schools and travel there if they wish to make personal contact with students and teachers. It is also difficult for prospective applicants to obtain additional information about the Academies and for Academy staff to collect missing application information.

Even though they had a large number of schools from which to recruit students, staff from the Public Service Academy worked to provide information brochures – in some cases by mail and in other cases at an assembly or through a counselor at the school – to all 9th grade students in the target schools. In-person presentations are not generally possible for Academies like the Public Service Academy, which recruit students from several schools. Instead, Academy staff make direct contact with the school counselors to solicit their help in disseminating information about the program and in distributing and collecting applications. Staff from Academies that drew students from several schools felt that limited personal contact with prospective applicants was somewhat of a hindrance to the recruitment effort. Also, as discussed below, when prospective applicants were not enrolled in the host high school, it was difficult for Academy staff to follow up on applications.

---

[3]Anacostia High School operates another Academy for a small number of 9th graders. Historically, very few of these students have applied for the Public Service Academy.

The Academy of Travel and Tourism (Miami Beach)

Student Recruitment and Selection Strategies

The Academy of Travel and Tourism is located in Miami Beach in Dade County, the third largest school district in the country. Supported by the National Academy Foundation, the program began in 1991. It serves students in grades 10 through 12 and takes advantage of local surroundings to offer students a strong curriculum, paid internships, "familiarization" trips, and small classes focused on travel and tourism. Representatives from businesses, including the American Express Company, Budget Rent-A-Car, Marriott Hotels, and United Airlines, and from the Academy of Travel and Tourism Advisory Committee, provide support from the travel, tourism, and hospitality industries and raise funds to support the program.

Student recruitment typically begins during the month of March. Students learn about the Academy through many methods, most of which involve Academy teachers, who devote extra time to recruitment activities. These teachers conduct a school-wide assembly to discuss the program; they make appeals to individual students who they believe would benefit from the program; and they and their students visit each 9th grade English and English for Speakers of Other Languages (ESOL) class. In addition, the Academy sends letters to all 9th graders at their homes. At school, posters are hung in the hallways, brochures are distributed, and closed-circuit television reminders are broadcast.

Interested students are given an application package and asked to read an information sheet, obtain two teacher recommendations, have their parents sign a release form, provide contact information, and complete the evaluation's Student Baseline Questionnaire. Students receive a free movie pass if they turn in a completed application before the deadline. Since students in Miami speak many different languages, the parental-release form and the contact information sheet are available in three languages: Spanish, Haitian-Creole, and English.

In recent years, approximately 275 to 325 students have expressed initial interest in the program and picked up an application package. Once they complete the application forms, they are interviewed in the library individually by three people: a teacher, a parent, and an Academy student. No pre-screening occurs before the interviews, which place over a five-week period. However, Academy teachers, parents, and students quickly scan the forms after they are returned to ensure that students have answered all the questions. Students are eligible for the Academy if they have a 2.0 GPA, average or better attendance, and two teacher recommendations, and if they show evidence of the maturity and motivation to attend.

Over the past few years, there have been no significant changes in the Academy's recruitment process. Prior to entering this evaluation, the Academy of Travel and Tourism conducted individual interviews with students, required teacher recommendations, and involved students in an interview process, but it did not use promotional materials or offer the application in three languages. In the spring of 1994, 135 students returned applications, 126 students were interviewed, and 109 were selected to become eligible for the program.

To strengthen students' commitment to the program and encourage them to enroll in the fall, selected students are sent a letter to welcome them into the program. In addition, Academy staff organize a pizza party in mid-April to tell the new students about the program, and over the summer they plan a small trip for the new students to further engage them.

The Public Service Academy (Washington, D.C.)

Student Recruitment and Selection Strategies

The Public Service Academy (PSA) was the first Academy to use a public service career theme. The Academy, which is located in Washington, D.C., and serves grades 10 to 12, sees its mission as building leaders and well-educated, service-oriented citizens. Each year, one or more "executives on loan" from federal agencies is assigned to the Academy to help manage the program and serve as a role model for students. The PSA is one of several high school career magnet programs in the district that recruit applicants on a city-wide basis from among the 9th grade junior high school students.

PSA recruitment is an intensive process. First, it stretches over several months and encompasses a number of schools: primarily the nine junior high schools from which it draws most of its students, but also all 17 junior high schools and two education centers in the District of Columbia. Although the scheduling of 9th grade students for classes at their selected high schools takes place in the spring, recruitment assemblies are held at the junior highs beginning in January.

Recruitment tasks are centralized with two or three non-teaching Academy staff, who make appointments to participate in the 9th grade assemblies organized by junior high school counselors. These staff also prepare Academy students to act as co-presenters with them at the assemblies and the Academy's spring open house for applicants, parents, junior high counselors, and community organizations. Current Academy students accompany PSA staff to all recruitment assemblies and play a major role in explaining the PSA's family-like atmosphere and its activities.

The PSA students and staff making presentations at the recruitment assemblies must distinguish the Academy from the several other special programs and presentations made by magnet schools that same day or at another assembly. The challenge to the presenters is to present information about the PSA attractively, clearly, and vividly, and to highlight the fact that it is fun and beneficial for its students. The Academy's message to students considering applying for admission includes descriptions of how, in addition to using school-based instruction to create a solid foundation of academic and career-related knowledge, the PSA uses the nation's capital as a learning laboratory. Prospective applicants learn that as Academy students they would participate in a three-phase work-readiness program in which classroom-based activities are augmented by field trips to various government agencies in the 10th grade, job shadowing at public agencies in the 11th grade, and paid internships in the summer after the 11th grade and during the 12th grade school year.

Ninth graders attending the assemblies also hear that, in keeping with its theme, the Academy offers its students extensive opportunities to participate in public service projects, frequently of their own design. Helping students gain access to college is a strong emphasis at the PSA, and this is also part of the picture sketched out for prospective applicants. The PSA is proud of its ability to offer SAT preparation courses to its seniors, as well as an annual college scholarship to one of its graduates.

To be considered as applicants, 9th graders have to complete the PSA's relatively brief application form, fill out the study-related baseline questionnaire and contact information sheet, and have their parents sign the parental permission form for the study. No interviews or teacher recommendations are required. Once applications are picked up at the junior highs by one of the PSA recruitment staff, they are screened for completeness and for basic eligibility, such as membership in the correct grade. When the applicant's junior high school records are obtained, the PSA teachers review them to determine whether the applicant has reasonable attendance rates and adequate academic performance. Unfortunately, these records are frequently not received in time to be used in the eligibility review process.

C. Marketing Messages

Nearly all of the Academies in the study prepared written marketing materials designed to provide information about the benefits of participating in the program and how students can apply. In fact, this was one of the primary ways sites utilized the technical assistance and additional resources MDRC made available for the study. Most of the sites felt that this assistance was beneficial to their programs, independent of the evaluation, and have incorporated the materials and strategies they developed with the consultant into their recruitment process after their involvement in the random assignment phase of the study ended.

Although some of the sites had already developed brochures, posters, and public address announcements about their Academies, they used the additional resources to upgrade their recruitment materials and distribute them more widely. The marketing consultant was able to provide useful advice about how to sharpen the message presented in these materials and to maximize its impact. This advice centered around three guidelines for successful recruitment: (1) saturate the target audience with advertising material, (2) focus on students rather than adults, and (3) focus on success stories that highlight short- and long-term benefits of participating in the program.[4] Table 4.1 lists the major marketing messages that were emphasized by each of the Career Academies.

II. The Application Process

The application process for each of the Career Academies usually involved several steps. Table 4.2 lists the key application requirements and eligibility criteria of each of the sites. For example, in the Academy of Travel and Tourism (Miami Beach), students were required to complete a written application, submit two teacher recommendations, and attend an interview with two of the Academy teachers. Parents were asked to sign a form indicating that they understood their child was applying to the program and that they would support him or her.

The application process for other sites was somewhat less formal than that employed by the Academy of Travel and Tourism. Students were not asked to complete a formal application or go through an interview. In some cases, virtually all students who submitted their names to the Academy staff – usually by filling out a short form with their name, school, and address – were considered to be applicants, though not they were not necessarily eligible for the programs. This was the process used by both the Academy of Finance (Baltimore) and the Health Professions Academy (Socorro), which also drew students from several schools.

MDRC asked sites to implement two activities during the application process as part of the random assignment process for the evaluation:

- asking students to complete a Student Baseline Questionnaire and an information sheet that would be used to contact them later in the study; and
- seeking parental consent acknowledging that parents were informed about their

[4]This summary is drawn from materials prepared for the sites by Cygnet Associates in Annapolis, Maryland. A representative from Cygnet Associates made at least one visit to each of the sites to discuss their marketing strategies. Cygnet also set up a toll-free hotline that enabled the sites to get further assistance if they wished.

Table 4.2

Career Academies Evaluation

Application Procedures and Eligibility Criteria of Participating Career Academies

Site	Written Application Required	Interview Required	Teacher/Counselor Recommendation Required	Parental Consent	Eligibility Criteria
Academy for Aerospace Technology (Cocoa, FL)	No	No	Yes	No	• Interest in aerospace technology.
Academy of Finance (Baltimore, MD)	Yes	No	Yes	Yes	• Minimum composite score from grades, attendance, and tests. • Ranked Academy as first or second choice for high school
Academy of Travel and Tourism[a] (Miami Beach, FL)	Yes	Yes	Yes	Yes	• Minimum GPA of 2.0. • Average or better attendance. • Maturity and motivation. • Interview with current Academy teacher, or Academy student or parent representative.
Business and Finance Academy (Pittsburgh, PA)	No	No	No	No	• Interest in business and finance.
Electronics Academy (I) (San Jose, CA)	Yes	Yes	No	Yes	• Past record of underachievement, irregular attendance, low motivation, and disadvantaged economically. • Interest in electronics.
Electronics Academy (SC) (San Jose, CA)	Yes	Yes	Yes	No	• Past record of underachievement, irregular attendance, low motivation, and disadvantaged economically.
Global Business Academy[b] (Santa Ana, CA)	Yes	For some candidates[c]	Yes	Yes	• Past record of underachievement, irregular attendance, low motivation, and disadvantaged economically.

(continued)

Table 4.2 (continued)

Site	Written Application Required	Interview Required	Teacher/Counselor Recommendation Required	Parental Consent	Eligibility Criteria
Health Professions Academy[d] (Socorro, TX)	Yes	No	Yes	Yes	• Interest in health professions.
Public Service Academy (Washington, D.C.)	Yes	No	No	Yes	• Interest in public service. • Average grades and attendance.
Watsonville Video Academy (Watsonville, CA)	Yes	Yes	No	Yes	• Average grades and attendance. • Past record of underachievement, irregular attendance, low motivation, and disadvantaged economically.

Source: MDRC field research.

Notes: All Academies were required to use MDRC's application materials, which consisted of a Student Baseline Questionnaire and parental consent form to be part of the evaluation.

All California Partnership Academies are required to enroll a portion of students who meet at least three of the following at-risk criteria: past record of irregular attendance, past record of underachievement, past record of low motivation, or economically disadvantaged.

[a]Previously, an essay and minimum GPA of 2.7 were required for admission. However, these requirements were not applied during the period of random assignment.

[b]Previously, an essay, teacher recommendation, and interview were required for admission. However, these requirements were not applied during the period of random assignment.

[c]Some candidates who do not seem to meet formal selection criteria may be interviewed to determine their appropriateness for the program.

[d]The Health Professions Academy used MDRC's materials exclusively while randomly assigning students to the Academy. Prior to and after that time, students were required to submit a one-page application form, a brief statement of why they wanted to be admitted to the Health Professions Academy, a teacher recommendation, and a parental consent form. The eligibility criteria of an average grade of 72 or above and demonstrated responsible behavior and attendance were not rigorously applied during the period of random assignment.

child's participation in the study and giving MDRC permission to collect data from their child's school records.[5]

In most cases, these activities were added to the Academies' existing application process. In a few cases, they replaced existing procedures or were used to formalize a relatively informal application process. All students were required to complete the baseline questionnaire and contact sheet and to seek their parents' signature on the consent form in order to be considered eligible for the Career Academy and to become part of the research sample.[6]

III. Screening for Eligibility

As noted above, all the participating Career Academies were interested in including a cross-section of students in their programs. This was particularly apparent in the inclusiveness of their recruitment efforts, during which they attempted to target virtually all the students in the relevant grade levels. More important, eight of the 10 Career Academies in the study did not establish formal minimum eligibility criteria – such as cutoffs based on test scores or grade point averages – for students applying to their programs.[7] This relatively open eligibility policy was usually adopted in an attempt to make the Academy a microcosm of the school as a whole.

Although most sites did not establish formal minimum eligibility criteria, Academy staff did screen students to determine their appropriateness for admission. Typically, Academy staff focused on evidence that students were sincerely interested in participating in the Academy and that they were not likely to present disciplinary problems. In some cases, as shown earlier in this chapter, in the profile

---

[5]The parental consent form was accompanied by an information sheet that described how a lottery-type process would be used to select students eligible for the Academies. It also asked parents to sign the consent form allowing MDRC to collect information from students' school records, and assured parents of the confidentiality of any information MDRC obtained. The consent form and the information sheet were made available to parents and students in English, Spanish, or Haitian-Creole, as needed. In addition, students were asked to sign a form acknowledging that they were aware that the study was taking place and that random assignment was being used to make the final determination of who would be admitted to the Academy.

[6]There were some exceptions to this. First, each site was allowed to set one or two Academy slots aside for students who they believed required special consideration. In most cases, these were siblings of students who were already enrolled in the program. In addition, students applying for the Academy of Finance (Baltimore) were not required to complete the baseline questionnaire or to obtain parental consent in order to be admitted to the Academy. In fact, most applicants did complete these two tasks. Students who did not, however, were still part of the random assignment process, but they were not considered part of the research sample and no further information will be collected for these students.

[7]The primary exception to this was the Academy of Finance (Baltimore). To be eligible for admission to this Academy, students were required to have a minimum composite score that combined the 8th grade attendance rate, grades in math and English, and standardized test scores in math and reading. Prior to its participation in the evaluation, the Academy of Finance set the cutoff score at a relatively high level in order to compete with other college preparatory magnet programs in the district. The staff subsequently lowered the minimum cutoff score to be more inclusive in response to recommendations from the Academy's Board of Directors and some of the staff, competition from public college preparatory programs, and to participate in this evaluation. The other exception was the Academy of Trade and Tourism (Miami Beach), which preferred students with at least a 2.0 GPA but was willing to accept some who showed high potential and interest in the program.

of the Academy of Travel and Tourism (Miami Beach), teachers assessed these qualities on the basis of an interview with the students and recommendations from teachers or counselors.

In other sites, Academy staff reviewed students' prior grades, attendance, and, in some cases, test scores. In cases where these records indicated that students had prior difficulties with attendance or achievement, teachers followed up by contacting the students directly or by contacting teachers or counselors familiar with the students. Usually, if students expressed a sincere interest in participating in the Academy and a commitment to improving their school performance, they were considered appropriate for admission to the program.

An important factor in the student selection process for the California Partnership Academies was state-defined criteria for including "educationally disadvantaged high school students." As noted earlier, state legislation defined the target population of students for the Partnership Academies as those who were at risk of dropping out of high school, as indicated by at least three of the following four criteria: (1) past record of irregular attendance, (2) past record of underachievement, (3) past record of low motivation or lack of interest in the regular school program, and (4) disadvantaged economically.[8] Because the state legislation did not establish formal definitions or cutoffs for these criteria, however, individual Academies could exercise discretion in determining eligibility. For example, staff from the Watsonville Video Academy interviewed each of the applicants for the program, asking them questions about their attendance and performance in school, why they were interested in the Academy, and their family background. On the basis of this interview, along with a review of the student's transcript and attendance record, staff completed rating sheets to determine which students met the state criteria.

IV. Random Assignment and Encouraging Students to Attend the Academies

The final stage of the recruitment and selection process consisted of two phases. The first phase involved the final selection of eligible students for participation in the Career Academies. For the purposes of the evaluation, a random lottery (referred to here as random assignment) was used to make this determination. The second phase involved a set of activities designed to gain students' commitment to the Academies and to encourage them to enroll in the program at the start of the upcoming school year. This section of the chapter describes each of these phases.

A. Conducting Random Assignment

The most important requirement for conducting random assignment in each of the sites was that they identify an excess number of eligible and appropriate students. As part of the negotiation of the Memorandum of Agreement with each of the sites (see Chapter 2), MDRC worked with staff in each of the Academies to establish specific recruitment goals. In general, the goal was to identify more than twice as many eligible and appropriate students as there were available program slots. In this way, the Academies would be assured of reaching a broad group of students, operating at full capacity, and having an adequate number of students for the evaluation control group. Most sites also preferred to have a waiting list of students from which to draw later in the event that enrollment fell below a threshold level.

After all eligible applicants had completed the baseline questionnaire and obtained their parents'

---

[8]Stern, Raby, and Dayton, 1992.

signature on the consent form, these materials were mailed to MDRC, which entered the information into a database. Using a computerized random assignment number generating system, students were then randomly selected to participate in the Career Academy (the program group). Next, a small group of the students who were not selected to participate in an Academy were randomly selected to be placed on a waiting list from which they might later be drawn to participate in the Academy if enrollment fell below a threshold level. Finally, the remaining students constituted the research sample control group.

Table 4.3 shows the number of available Academy slots, the number of students who applied and were determined to be eligible for the Academies, and the number of students randomly assigned to the Academy waiting list and control group for each Career Academy during each year of the study. The first column of the table indicates the capacity of the entering Academy class of each site for each year of the study. This is the estimated number of students the Academies anticipated enrolling and remaining in the programs through their first semester after being selected. The second column of Table 4.3 shows the total number of students who applied and were determined to be eligible and appropriate for participation in the Academies. It shows that, on average, the Academies identified approximately twice as many eligible and appropriate students as they had the capacity to serve.

Although all 10 sites in the study were able to identify a sufficient number of eligible and appropriate students to conduct random assignment, they varied in the extent to which they were able to meet the recruitment goals.[9] When a site was not able to identify at least twice the number of students as it had the capacity to serve, the first priority in conducting random assignment was to assure that all the available program slots were filled and, if necessary, to establish a waiting list. The remaining students constituted the control group.

For example, in 1994, the Academy for Aerospace Technology (Cocoa) planned to have 75 new students enroll and remain in the program through at least the first semester. This number reflected the total number of students that staff felt they could accommodate and still provide the instruction and service that formed the core of the program. The staff identified 116 students who they felt were eligible and appropriate for the Academy. In order to account for the likelihood that some students would be selected for the program but would later change their minds about enrolling, they wished to select more than 75 students for the program and to establish a waiting list in the event total enrollment got too low. As shown in Table 4.3, a total of 81 students were randomly selected to participate in the Academy, and five additional students were selected for the waiting list. The remaining 30 students, who constitute the research sample control group, were informed that they would not have an opportunity to participate in the Academy because the program was oversubscribed and there was no room on the waiting list.[10]

---

[9]Two other Career Academies were selected and agreed to participate in this evaluation. However, they were not able to identify a sufficient number of eligible and appropriate students for their program to permit the use of random assignment. In addition, the Business and Finance Academy (Pittsburgh) and the Public Service Academy (Washington, D.C.) were not able to identify a sufficient number of eligible and appropriate students to conduct random assignment in their first year in the study. However, they did succeed in doing so in their second year.

[10]In order to ensure a balanced research design for each site during each year of random assignment, MDRC sought to maintain a constant ratio of six research sample program group students for every five control group students. In cases where sites were not able to identify the required number of students, a

(continued...)

Table 4.3

Career Academies Evaluation

Academy Capacity and Random Assignment Status of Eligible Applicants, by Site and Year of Random Assignment

Site and Year of Random Assignment	Estimated Capacity of Entering Academy Class[a]	Students Eligible for Admission to Academies	Students Eligible for Career Academies: Randomly Assigned to: Academy[b]	Waiting List[c]	Control Group[d]	Research Sample Program Group[e]
Academy for Aerospace Technology (Cocoa, FL)						
1993	--	--	--	--	--	--
1994	75	116	81	5	30	36
1995	65	92	65	0	27	33
Total	140	208	146	5	57	69
Academy of Finance (Baltimore, MD)						
1993	65	124	68	15	41	48
1994	65	125	69	14	42	51
1995[f]	50	83	45	2	36	43
Total	180	332	182	31	119	142
Academy of Travel and Tourism (Miami Beach, FL)						
1993	50	145	60	35	50	58
1994	50	112	59	6	47	57
1995	50	109	57	6	46	54
Total	150	366	176	47	143	169
Business and Finance Academy (Pittsburgh, PA)						
1993	--	--	--	--	--	--
1994	--	--	--	--	--	--
1995	55	90	60	0	30	36
Total	55	90	60	0	30	36
Electronics Academy (I) (San Jose, CA)						
1993	30	73	30	18	25	30
1994	35	71	42	0	29	36
1995	--	--	--	--	--	--
Total	65	144	72	18	54	66
Electronics Academy (SC) (San Jose, CA)						
1993	40	78	43	0	35	43
1994	45	102	50	11	41	50
1995	--	--	--	--	--	--
Total	85	180	93	11	76	93
Global Business Academy (Santa Ana, CA)						
1993	55	112	58	6	48	58
1994	55	116	58	9	49	58
1995	55	92	60	0	32	38
Total	165	320	176	15	129	154
Health Professions Academy (Socorro, TX)						
1993	50	104	55	3	46	54
1994	50	107	55	6	46	53
1995	--	--	--	--	--	--
Total	100	211	110	9	92	107

(continued)

Table 4.3 (continued)

Site and Year of Random Assignment	Estimated Capacity of Entering Academy Class[a]	Students Eligible for Career Academies: Students Eligible for Admission to Academies	Randomly Assigned to: Academy[b]	Waiting List[c]	Control Group[d]	Research Sample Program Group[e]
Public Service Academy (Washington, D.C.)						
1993	--	--	--	--	--	--
1994	--	--	--	--	--	--
1995	60	120	66	0	54	66
Total	60	120	66	0	54	66
Watsonville Video Academy (Watsonville, CA)						
1993	50	111	54	12	45	54
1994	50	106	54	7	45	54
1995	50	105	58	2	45	54
Total	150	322	166	21	135	162
All sites						
1993	340	747	368	89	290	345
1994	425	855	468	58	329	395
1995	385	691	411	10	270	324
Total	1,150	2,293	1,247	157	889	1,064

Source: MDRC random assignment rosters for each site.

Notes: Where data are not applicable, dashes are used.

[a]The estimated capacity of an entering Academy class is the number of students that the Academy anticipated retaining in its program through their first semester following admission.

[b]These students were invited to enroll in the Career Academy program.

[c]These students were not invited to enroll in the Career Academy program, but were notified that they may have the opportunity later if enrollment falls below a threshold level.

[d]These students were not invited to enroll in the Career Academy program, but were able to choose other programs within the high school or district or attend regular high school classes.

[e]This is a randomly chosen subset of those students who were invited to enroll in the Career Academy program (the remaining students in that group were not followed for this evaluation). The number of students included in the research sample program group was determined by multiplying the number of students in the control group by 1.2. This ensured a balanced research design through a constant ratio of six research sample program group students for every five control group students for each site for each year.

[f]The 1995 entering class at the Academy of Finance randomly assigned 9th grade students in an attempt to expand the program in the 10th grade by 50 additional students. The previous cohorts were randomly assigned in the 8th grade.

As was the case in many of the sites, it was important that more than 75 students be randomly assigned to participate in the Academy for Aerospace Technology because the program was likely to experience a modest amount of attrition prior to and at the start of the school year. Therefore, even if up to six students did not enroll in the Academy at the start of the school year, the program would still be able to operate at capacity. If enrollment fell below this level, the Academy could enroll students from the waiting list. In general, most of the sites preferred not to enroll students in the program after the first semester even if they were operating somewhat below the ideal capacity.[11]

B. Encouraging Students to Enroll the Academy

Once students were selected to participate in the Career Academies, staff from the sites engaged in activities to increase the likelihood that students would enroll in the fall. These activities included:

- sending a letter congratulating students on their admission to the program;
- inviting both current and prospective students to a special Academy activity at the end of the school year or during the summer; and
- making periodic contact with students during the summer.

In addition to these efforts, some Career Academies engaged in other activities to gain the selected students' commitment, as shown in the Business and Finance Academy profile in the box below. In many ways, the follow-up activities described in this profile are typical of sites in the study. After the 1994-95 school year, however, staff from this Academy realized that some of the students they had selected were in jeopardy of not being promoted to the 10th grade, and thus would not be able to enroll in many of the Academy classes. In response, staff organized summer classes to help these students obtain school credits and to strengthen their commitment to the program. Although none of the other sites went to this length to engage students in their programs, this example illustrates what is possible when a group of teachers take direct responsibility for the success of a well-defined group of students.

V. Random Assignment and Program Operations

One question that arises in the context of most program evaluations is whether the research

---

[10](...continued)
random subset of students selected to participate in the Academies was chosen for the research sample. For example, in 1994, the Academy for Aerospace Technology (Cocoa) recruited 116 students for the 75 Academy slots it wished to fill. After randomly assigning 81 students to the Academy and five students to the waiting list, there were 30 students for the control group. In order to maintain the six-to-five ratio, 36 of the 81 Academy students were randomly chosen to constitute the research sample program group. In all, therefore, there are 66 students in the research sample for the Academy for Aerospace Technology (36 in the program group and 30 in the control group).

[11]Sites differed in the extent to which they wished to have an excess number of students assigned to the Academies and in whether they wished to establish a waiting list. Some sites preferred to minimize the number of extra students assigned to the Academy because they were reasonably confident that a large proportion would participate and they did not want to risk exceeding their capacity. For similar reasons, some sites preferred not to establish a waiting list or wished to minimize the number of students on it. Also, some of the sites found that students who were not admitted into the Academies at the beginning of the school year were not likely to switch out of their regular classes midway through the semester or the school year.

The Business and Finance Academy (Pittsburgh)

Helping Low-Achieving Students Make the Transition to the Academy

The Business and Finance Academy (BFA) was established in 1984 to optimize successful school-to-work transitions for students at George Westinghouse High School. Formed through a partnership between the Pittsburgh Public Schools and two local organizations that have had a long-standing involvement with the school system — the Urban League of Pittsburgh and the Allegheny Conference on Community Development, a private nonprofit organization that is the corporate community's lead civic agency for economic development — BFA continues to enjoy the active interest and support of the founding groups.

BFA's strategies to increase commitment to attending the Academy among selected students are typical of those used by most of the Academies in the study. Students selected to become eligible for the BFA are welcomed through a congratulatory letter, which is followed by an in-person greeting or phone call from a teacher. Entering students also attend an orientation during the summer.

Several students recruited and selected for BFA's 1995 10th grade Academy class did not pass one or more of their 9th grade classes. BFA has few eligibility criteria, accepting virtually all students who are interested in its business orientation theme. Indeed, from its inception, part of the Academy's mission has been to serve underachieving students and help improve their attendance and grades. Without some form of assistance, however, the students who failed to pass the 9th grade could not enter BFA and the Academy would be under-enrolled. More importantly, some of the retained students had such poor records that staff feared the students might drop out of school before they finished repeating the 9th grade and entered the Academy. They could not catch up through summer school, because the Pittsburgh Public School system provides it only for seniors who need more credits to graduate.

BFA staff concluded that the Academy should try to offer the 9th graders the chance to make up credits in the courses they needed to enter the 10th grade. They sought and received school system approval for an Academy-designed and operated summer institute that would focus on the courses the students had failed. The institute was funded through BFA's evaluation site grant and additional contributions from the Academy's foundation and employer partners who are members of its advisory board. Enrollment was open not only to 9th grade students who had failed courses, but also to those who had passed with very low grades and a few 10th graders who were not in the study. Over 40 9th and 10th grade students were invited to attend.

The institute was held from 7:30 a.m. to 2:00 p.m. for 20 days in July. Classes were offered in math, English, social studies, and business and finance. Over 30 students responded to the offer to attend the institute. Classes were small enough to allow the four teachers to offer personalized instruction. Eight students entering their senior year at the Academy served as tutors; these students not only assisted with class work in cooperative learning groups, but also immediately phoned students who had not arrived at the institute by 7:30 a.m. Through participation in the institute, 27 students, many of whom had very poor attendance records, completed their courses, earning up to two credits each.

requirements affected program operations. In the case of the Career Academies, staff from MDRC and the sites made a conscious effort to minimize the extent to which the random assignment procedures affected the Academies. Prior to the evaluation, many of the ultimately participating sites did not engage in systematic student recruitment and selection activities. Typically, students who applied to the Academies were accepted on a first come, first served basis. By engaging in a more systematic recruitment effort and a more structured application process, the sites enabled a larger number of students to learn about and apply for the programs. This also meant that the Academies had to turn a larger number of students away.

Staff from several of the participating Career Academies reported that they had reservations about the new recruitment and selection process. Some of their concerns focused on the difficulty they had in identifying a larger number of eligible and appropriate students compared to the numbers of applicants in previous years. In some cases, staff reported, they did not screen out students as vigorously as they had previously. As a result, they believed that some of the students who were admitted to the Academies under the random assignment procedures were less motivated and more difficult to teach than students admitted under previous procedures.

Because most of the Academies did not collect background information systematically on students prior to the study, it is difficult to assess the extent to which students who were identified during the random assignment process are different from those identified in prior years. Even if such information did exist, it would still be difficult to determine the extent to which the recruitment and selection procedures and the use of random assignment were the cause of any differences. As teachers from some of the Academies pointed out, each cohort of Academy students is different, and the composition of previous cohorts was as much a product of which students happened to apply as the more subjective selection process. Some teachers preferred the expanded recruitment activities because they helped expand the opportunity of participating in the Academy to many more students. In a situation where the Academy could not serve all interested and appropriate students, random assignment was seen as a more objective way of deciding which of the many eligible students would ultimately be selected to participate.

Finally, it is impossible to predict with any certainty which students are likely to benefit from the Academy experience and which are not. This means that all screening criteria run the risk of turning away students who would have benefited from entering the Academy. Indeed, a key goal of this evaluation is to provide reliable information about the relative effectiveness of the Academy for various subgroups of students – information that can be used in future student selection efforts.

When interpreting the findings from this evaluation, it is important to keep in mind the possibility that the requirements for using random assignment may have affected the composition of the Career Academies classes and thus may have affected the operation of the Academies.

CHAPTER 5

STUDENTS IN THE CAREER ACADEMIES

A diverse group of students is attracted to Career Academies. Some students enter an Academy as a final effort to avoid dropping out; others enter with excellent academic records. The Career Academies research sample represents a cross-section of high school students, thus enabling the evaluation to shed light on the question of which kinds of students benefit most from the Academies.

This chapter describes the background characteristics of the students in the full research sample at the time of their random assignment to the program and control groups. The demographic, family background, and educational characteristics of the students are described in the first section of this chapter.[1] Following is a description of the degree to which the students in the research sample are at risk of educational failure. This information provides a framework for evaluating the benefits of the Career Academy model for this key subgroup of at-risk students. In the third section of this chapter, additional subgroups of students are identified that will be important to future analyses of which students are best served by the Academies.

I. Background Characteristics of the Students in the Full Research Sample

A. Demographic and Family Background Characteristics

The research sample used in the Career Academies Evaluation consists of 1,953 students from 10 high schools across the country. The majority of the high schools are located in school districts serving large numbers of low-income and minority students. These communities, however, are quite varied. For example, the Public Service Academy is located in Anacostia, a poor black section of Washington, D.C., while the Watsonville Video Academy is located outside Santa Cruz, California, and serves a large number of Hispanic students.

Table 5.1 summarizes the demographic and family backgrounds of the students in the research sample. Most of the students are from minority backgrounds: approximately 50 percent are Hispanic and 30 percent are black. These demographics reflect the decision to target Academies in low-income and minority areas for this evaluation, and are also due to the large number of Hispanic students in the California sites. A subgroup analysis of the effectiveness of the Career Academy model for Hispanic students may be used in future studies to help identify factors responsible for the high dropout rate among Hispanic students.

There is considerable cultural variation among the black and Hispanic students in the research sample. The Hispanic students from Texas are largely from Mexican backgrounds, whereas the Hispanic students from Miami include those from Latin America, Cuba, and other Caribbean countries. The black students also have varied cultural backgrounds. Many of those in Miami are from

---

[1]Self-reported data from the Career Academies Student Baseline Questionnaire are used to calculate results presented in this chapter. Students may alter their responses to sensitive questions, such as what their grades are and whether their family receives public assistance, thereby influencing the reported fundings.

Table 5.1

Career Academies Evaluation

Selected Characteristics of the Research Sample at the Time of Random Assignment

Characteristic	Percentage of Sample	Sample Size
Gender		
Male	44.4	867
Female	55.6	1,086
Race/ethnicity		
Black	30.2	579
White	9.9	190
Hispanic	53.1	1,018
Asian	6.1	117
Native American	0.7	13
Father's education		
Did not finish high school	37.3	515
GED recipient	6.3	87
High school graduate	27.1	375
Some post-secondary education	16.8	232
College graduate	12.5	173
Mother's education		
Did not finish high school	34.5	546
GED recipient	8.5	134
High school graduate	26.8	424
Some post-secondary education	19.5	308
College graduate	10.8	171
Parents work for pay		
Both work	47.9	867
Father works	23.5	425
Mother works	17.6	319
Neither works	11.0	200
Family on public assistance		
Family receiving welfare	15.1	256
Family receiving food stamps	19.6	348
Family composition		
Two-parent household	61.5	1,173
Single-parent household	33.3	635
Student lives with other relatives	5.2	100

(continued)

Table 5.1 (continued)

Characteristic	Percentage of Sample	Sample Size
Family moved in last two years		
Never moved	58.5	1,124
Moved once or twice	34.5	662
Moved three or more times	7.0	134
Family size		
2 or 3 family members	10.3	196
4 or 5 family members	38.2	728
6 or 7 family members	31.7	604
8 or more family members	19.9	380
Siblings who dropped out of high school		
0	79.4	1,505
1	12.8	242
2 or more	7.9	149
Student speaks limited English[a]	8.1	155
Total sample size		1,953

Source: MDRC calculations from the Career Academies Student Baseline Questionnaire.

Note: [a]Students who responded that they spoke English "not well" or "not at all."

Caribbean countries, such as Haiti, Barbados, and Jamaica, while many of the black students in the eastern urban Academies, such as the Public Service Academy in Washington, D.C., are from the Southern states.

Table 5.2 summarizes the demographic and family background characteristics of students by site. The racial and ethnic composition of the students reflects the communities in which the Academies are located. For example, the 97 percent Hispanic student population in the Health Professions Academy in Socorro, Texas, reflects the immigrant population from Mexico. In contrast, the Academy of Travel and Tourism in Miami Beach, although predominantly Hispanic, has a substantial percentage of black, white, and Asian students.

The northeastern urban Academies, located in Washington, D.C., Pittsburgh, and Baltimore, are predominantly black. All students selected for the Business and Finance Academy (Pittsburgh) are black, and 97 percent of the students in the Public Service Academy (Washington, D.C.) and the Academy of Finance (Baltimore) are black.

Most of the Academies have small numbers of white and Asian students. The exceptions are the predominantly white Academy for Aerospace Technology in Cocoa, Florida, and the Electronics Academies in San Jose, California, which have a substantial percentage of Asian students.

While a direct measure of family income is not available for the research sample, several of the demographic characteristics provide a broad assessment of family economic status. (One reason a direct measure of income was not collected is that students often do not know family income.)

The low educational level of the majority of the students' parents (37 percent of students' fathers had not finished high school, and 33 percent had earned only a high school diploma or GED) suggests that, on average, students' family incomes are low to moderate. Education levels of the parents in the predominantly Hispanic Academies are lower than in predominantly black or white Academies. For example, in the 91 percent Hispanic Global Business Academy at Santa Ana, 78 percent of students' mothers had not received high school diplomas, compared to an average of 12 percent of mothers in the predominantly black Academies and 20 percent of mothers in the largely white Academy.

Another estimate of family income is receipt of public assistance. About 20 percent of students reported that their families were receiving Food Stamps. This may be an underestimate owing to students' reluctance to report public assistance receipt. The self-reported levels of public assistance receipt vary across sites, and are generally greater in urban Academies than in small-city and rural Academies (with the exception of Socorro, where 39 percent reported receiving public assistance).

Low to moderate family income is also suggested by the number of students living in single-parent households and the high rates of family mobility. About a third of the students reported living in single-parent households, and this rate is over 60 percent in some predominantly black Academies. Over 40 percent of the students reported that their families had moved at least once in the last two years.

The Academies in this evaluation have attracted marginally more girls than boys (56 percent of the sample is female). This balance generally changes, however, in Academies with a strong technical f- s: for example, 63 percent of the students in the Public Service Academy in Washington, D.C., are female, whereas 41 percent of the students in the Electronics Academy at Silver Creek High School in San Jose are female. Further analysis is needed to evaluate the influence of occupational themes on the distribution of males and females in an Academy.

Table 5.2

Career Academies Evaluation

Selected Characteristics of the Research Sample at the Time of Random Assignment, by Site

Characteristic	Full Sample	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
Gender											
Male	44.4 %	52.4 %	37.9 %	39.4 %	62.1 %	53.3 %	58.6 %	44.5 %	30.7 %	36.7 %	48.5 %
Female	55.6	47.6	62.1	60.6	37.9	46.7	41.4	55.5	69.4	63.3	51.5
Race/ethnicity											
Black	30.2	29.0	97.3	26.0	100.0	4.3	11.3	3.9	0.0	96.6	0.0
White	9.9	62.9	1.2	9.3	0.0	9.4	13.1	0.7	2.1	0.0	14.6
Hispanic	53.1	4.8	1.2	62.5	0.0	50.4	43.1	90.8	97.4	1.7	82.6
Asian	6.1	1.6	0.0	1.3	0.0	35.9	31.3	4.6	0.0	0.0	2.1
Native American	0.7	1.6	0.4	1.0	0.0	0.0	1.3	0.0	0.5	1.7	0.7
Father's education											
Did not finish high school	37.3	17.0	20.6	19.7	19.2	31.2	18.5	74.5	53.7	20.0	58.0
GED recipient	6.3	5.7	10.1	6.4	10.6	1.3	3.4	2.0	10.5	5.0	6.7
High school graduate	27.1	38.7	35.7	29.1	44.7	26.0	28.6	14.8	13.0	45.0	22.3
Some post-secondary education	16.8	31.1	23.1	18.7	10.6	22.1	21.9	4.6	17.9	17.5	7.8
College graduate	12.5	7.6	10.6	26.1	14.9	19.5	27.7	4.1	4.9	12.5	5.2
Mother's education											
Did not finish high school	34.5	20.0	12.2	21.1	10.2	34.1	20.2	77.5	49.7	12.5	50.9
GED recipient	8.5	5.5	13.5	5.9	15.3	5.5	5.4	5.1	10.1	9.6	10.1
High school graduate	26.8	35.5	31.9	25.7	35.6	24.2	33.3	12.4	20.7	47.1	22.5
Some post-secondary education	19.5	32.7	31.1	25.7	17.0	18.7	22.5	2.8	16.2	18.3	12.4
College graduate	10.8	6.4	11.3	21.5	22.0	17.6	18.6	2.3	3.4	12.5	4.1
Parents work for pay											
Both work	47.9	56.2	45.9	52.8	41.0	50.0	62.0	45.4	31.2	42.9	49.2
Only father works	23.5	21.5	15.4	17.7	24.6	24.1	17.2	33.6	40.2	17.9	21.9
Only mother works	17.6	12.4	25.7	20.9	24.6	14.3	11.0	13.7	12.7	19.6	19.1
Neither works	11.0	9.9	13.0	8.5	9.8	11.6	9.8	7.3	15.9	19.6	9.8

(continued)

Table 5.2 (continued)

Characteristic	Full Sample	Academy for Aerospace Technology, Cocoa, FL	Academy of Finance, Baltimore, MD	Academy of Travel and Tourism, Miami Beach, FL	Business and Finance Academy, Pittsburgh, PA	Electronics Academy (I), San Jose, CA	Electronics Academy (SC), San Jose, CA	Global Business Academy, Santa Ana, CA	Health Professions Academy, Socorro, TX	Public Service Academy, Washington, D.C.	Watsonville Video Academy, Watsonville, CA
Family on public assistance											
Family receiving welfare	15.1 %	10.9 %	19.7 %	12.2 %	29.1 %	18.7 %	15.7 %	8.4 %	11.3 %	33.0 %	12.2 %
Family receiving food stamps	19.6	10.1	25.3	16.9	28.6	16.1	13.3	11.5	38.8	34.6	13.0
Family composition											
Two-parent household	61.5	64.5	40.9	47.4	35.5	72.3	70.7	79.7	82.5	25.0	72.1
Single-parent household	33.3	30.7	47.6	46.8	61.3	26.9	23.4	17.4	14.4	69.0	23.3
Student lives with other relatives	5.2	4.8	11.4	5.8	3.2	0.8	6.0	2.9	3.1	6.0	4.6
Family moved in last two years											
Never moved	58.5	56.0	66.1	39.4	58.5	55.0	61.0	62.7	76.3	60.8	56.7
Moved once or twice	34.5	37.6	29.9	48.4	26.2	35.8	32.0	29.8	19.6	35.0	39.4
Moved three or more times	7.0	6.4	3.9	12.3	15.4	9.2	7.1	7.5	4.1	4.2	3.9
Family size											
2 or 3 family members	10.3	8.9	14.6	18.5	21.0	3.4	7.8	4.6	6.2	14.7	6.7
4 or 5 family members	38.2	41.9	38.2	44.8	32.3	36.1	43.7	28.5	42.3	31.0	37.8
6 or 7 family members	31.7	31.5	25.6	22.7	21.0	45.4	34.1	38.1	38.1	33.6	30.4
8 or more family members	19.9	17.7	21.7	14.0	25.8	15.1	14.4	28.8	13.4	20.7	25.1
Siblings who dropped out of high school											
0	79.4	72.8	76.0	83.3	76.6	81.2	79.6	74.4	84.9	81.2	81.2
1	12.8	17.6	15.6	9.5	15.6	12.0	15.6	14.1	9.4	12.0	11.0
2 or more	7.9	9.6	8.4	7.2	7.8	6.8	4.8	11.6	5.7	6.8	7.8
Student speaks limited English[a]	8.1	0.0	1.2	24.6	1.7	1.7	1.2	10.6	7.5	0.0	9.1
Total sample size	1,953	126	261	312	66	120	169	283	199	120	297

Source: MDRC calculations from the Career Academies Student Baseline Questionnaire.

Notes: [a]Students who responded that they spoke English "not well" or "not at all."

BEST COPY AVAILABLE

B. Educational Characteristics

Most of the students in the research sample were engaged in school and achieving moderately well prior to their selection for the Academies (or the control group), according to their responses to MDRC's baseline questionnaire, which they completed when they applied to the Academics (see Tables 5.3 and 5.4). This seems to reflect the shift in the Career Academy movement from targeting students at risk of dropping out to recruiting a broader cross-section of high school students.

Over 80 percent of students reported receiving mostly Bs or Cs in English since the 6th grade, and approximately 13 percent reported receiving mostly As.[2] About a quarter of the students are over-age for their grade, which probably indicates that they had repeated a grade.

The attendance rate for the majority of the students was good, with only 7 percent of the students reporting more than 10 absences in the semester prior to random assignment. Almost 80 percent of students reported that they "never or almost never" cut class and a small percent of students reported being sent to the office for behavioral problems 3 or more times. About 25 percent more students had attended two or more schools than would have been expected from grade-level promotions and graduations since the 1st grade.

Students' school engagement and education history vary across sites. Some Academies have attracted more students who were high achievers prior to applying to the Academies than others. For example, 88 percent of students applying to the Health Professions Academy (Socorro) reported receiving As or Bs in English, compared to 60 percent of students reporting mostly Cs or Ds since the 6th grade in the Business and Finance Academy (Pittsburgh). Some of the Academies attracted students with a wider range of self-reported grades than others. The Academy for Aerospace Technology (Cocoa) recruited a considerable number of students who reported receiving mostly As, as well as students who reported receiving mostly Ds, suggesting that the Academy includes students who are doing well and looking for greater learning opportunities, as well as some underachievers who hope to improve academically in the more hands-on learning environment offered by the Academy.

The majority of the students felt positive about their prior school experiences, with exceptions at some sites. Over 80 percent of the students said their teachers were interested in them and that discipline was handled fairly. The students in some urban Academies were less likely to report such teacher interest; for example, only 60 percent of the students in the Business and Finance Academy (Pittsburgh) felt that their teachers expressed interest in them. The students in the urban areas also reported feeling less safe in school (37 percent of the students recruited for the Public Service Academy in Washington, D.C., reported having felt unsafe in school).

An important contributor to students' success in school is contact between the home and the school. Only 21 percent of the students in the research sample said their parents attended school meetings regularly, with 43 percent reporting that their parents never attended a school meeting in the semester prior to random assignment. This suggests that the more personalized atmosphere created by the school-within-a-school Career Academies may facilitate greater contact between home and school.

---

[2]In this questionnaire — the Career Academies Student Baseline Questionnaire — students were asked to describe their grades "since the 6th grade." This meant describing them through half of the 9th grade for students in the 10th grade Academies, and through half of the 8th grade for students in the 9th grade Academies.

Table 5.3

Career Academies Evaluation

Selected Educational Characteristics of the Research Sample at the Time of Random Assignment

Characteristic	Percentage of Sample	Sample Size
Students' grades		
English grades since the 6th grade		
Mostly As	13.1	249
Mostly Bs	48.1	915
Mostly Cs	33.7	641
Mostly Ds or below	5.1	98
Math grades since the 6th grade		
Mostly As	13.9	267
Mostly Bs	39.3	753
Mostly Cs	36.2	694
Mostly Ds or below	10.5	202
Students over-age for grade[a]	24.7	483
Students' school engagement and participation[b]		
Attendance		
Never absent	22.0	416
Absent 1 or 2 times	35.5	671
Absent 3 to 10 times	35.5	672
Absent more than 10 times	7.0	132
Warned about school behavior		
Never	77.5	1,461
1 or 2 times	18.9	356
3 to 10 times	3.4	65
More than 10 times	0.2	3
Sent to office for behavioral problems		
Never	80.4	1,519
1 or 2 times	16.2	306
3 to 10 times	3.0	56
More than 10 times	0.4	8
Cuts class		
Never or almost never	79.3	1,526
Sometimes but less than once a week	13.7	263
Not daily but at least once at week	5.7	110
Daily	1.4	26
Late for school		
Never	26.6	507
1 or 2 times	37.0	705
3 to 10 times	28.9	552
More than 10 times	7.5	143

(continued)

Table 5.3 (continued)

Characteristic	Percentage of Sample	Sample Size
School mobility[c]		
0 or 1 different schools	72.2	1359
2 to 4 different schools	24.1	454
5 or more different schools	3.7	70
Time spent on homework per week		
None	2.2	41
1 hour	27.5	522
2 to 3 hours	38.0	723
4 to 6 hours	17.3	328
7 or more hours	15.1	287
Students' perception of school[d]		
Teachers interested in students	81.9	1,548
Discipline is fair	83.9	1,591
Student feels put down	18.7	353
Student feels unsafe	23.5	446
Parental contact with school[b]		
Attended school meeting		
Never	42.6	737
1 or 2 times	36.9	639
3 or more times	20.5	354
Students' future expectations		
Plans to graduate from high school	99.7	1,914
Plans to graduate from college	64.9	1,246
Plans to have a professional career at age 30	32	590
Total sample size	1,953	

Source: MDRC calculations from the Career Academies Student Baseline Questionnaire.

Notes: [a]A student is defined as over-age for grade at the time of random assignment if she or he turns 15 before the start of the 9th grade (for the 9th grade Academies) or 16 before the start of the 10th grade (for the 10th grade Academies).

[b]Unless otherwise indicated, measures of student engagement and participation and parental contact with school were asked in reference to the first half of the current school year.

[c]School mobility is defined as the number of schools attended since the first grade beyond the number expected to result from promotions in grade level or graduations.

[d]For most students, the school of reference is the host high school for the Academy. However, for sites that recruit from outside the host high school (primarily the Academies starting in the 9th grade), students are referring to their middle or junior high

Table 5.4

Career Academies Evaluation

Selected Educational Characteristics of the Research Sample at the Time of Random Assignment, by Site

Characteristic and Subgroup	Full Sample	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
Students' grades											
English grades since the 6th grade											
Mostly As	13.1 %	16.0 %	7.1 %	15.2 %	7.6 %	7.5 %	11.5 %	12.5 %	25.1 %	10.2 %	13.1 %
Mostly Bs	48.1	37.6	57.1	44.4	33.3	38.3	39.8	50.5	62.6	53.4	46.3
Mostly Cs	33.7	38.4	34.9	36.7	48.5	40.8	38.0	31.7	12.3	34.8	34.6
Mostly Ds or below	5.1	8.0	0.8	3.7	10.6	13.3	10.8	5.3	0.0	1.7	6.0
Math grades since the 6th grade											
Mostly As	13.9	13.6	13.0	12.8	4.6	16.7	8.3	14.2	20.8	12.7	15.8
Mostly Bs	39.3	27.2	44.3	41.8	33.9	24.2	38.7	33.5	53.3	39.0	41.8
Mostly Cs	36.2	41.6	37.9	35.2	46.2	35.0	34.5	41.6	23.9	42.4	33.3
Mostly Ds or below	10.5	17.6	4.7	10.2	15.4	24.2	18.5	10.7	2.0	5.9	9.1
Students over-age for grade[a]	24.7	45.2	20.3	34.0	43.9	16.7	24.9	23.3	20.6	26.7	12.5
Students' school engagement and participation[b]											
Attendance											
Never absent	22.0	8.8	16.3	24.8	31.2	20.0	12.7	28.0	33.9	13.7	23.6
Absent 1 or 2 times	35.5	32.0	42.9	31.6	32.8	33.3	34.9	34.6	33.9	33.3	39.6
Absent 3 to 10 times	35.5	45.6	35.5	37.5	27.9	35.8	41.6	28.7	31.3	47.9	31.4
Absent more than 10 times	7.0	13.6	5.3	6.2	8.2	10.8	10.8	8.7	1.0	5.1	5.4
Warned about school behavior											
Never	77.5	68.8	65.8	85.5	51.6	67.0	78.3	90.3	78.6	67.2	83.6
1 or 2 times	18.9	23.2	31.3	13.2	32.3	21.2	18.7	8.6	19.9	26.1	14.9
3 to 10 times	3.5	8.0	2.9	1.3	14.5	11.0	3.0	1.1	1.5	5.9	1.5
More than 10 times	0.2	0.0	0.0	0.0	1.6	0.9	0.0	0.0	0.0	0.8	0.0
Sent to office for behavioral problems											
Never	80.4	64.3	74.6	88.4	72.6	81.5	80.7	80.7	80.5	71.4	88.8
1 or 2 times	16.2	27.0	22.5	10.6	12.9	14.3	14.5	17.2	15.4	23.5	10.8
3 to 10 times	3.0	7.9	2.9	1.0	9.7	2.5	4.8	1.4	4.1	5.0	0.4
More than 10 times	0.4	0.8	0.0	0.0	4.8	1.7	0.0	0.7	0.0	0.0	0.0
Cuts class											
Never or almost never	79.3	81.8	95.3	85.5	68.8	47.5	74.3	74.8	91.4	75.4	73.4
Sometimes but less than once a week	13.7	11.1	3.9	12.9	20.3	26.7	16.2	17.0	6.1	16.1	16.8
Not daily but at least once at week	5.7	5.6	0.8	1.6	4.7	15.8	8.4	7.5	2.0	8.5	8.7
Daily	1.4	1.6	0.0	0.0	6.3	10.0	1.2	0.7	0.5	0.0	1.1

(continued)

Table 5.4 (continued)

Characteristic	Full Sample	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
Late for school											
Never	26.6 %	22.2 %	25.2 %	30.4 %	24.2 %	15.8 %	7.2 %	39.2 %	47.0 %	18.5 %	18.7 %
1 or 2 times	37.0	46.0	39.8	37.2	43.6	30.0	33.1	31.7	40.4	32.8	38.5
3 to 10 times	28.9	24.6	30.1	29.8	22.6	40.8	37.4	24.5	11.1	37.0	33.9
More than 10 times	7.5	7.1	4.9	2.6	9.7	13.3	22.3	4.7	1.5	11.8	8.8
School mobility[c]											
0 or 1 different schools	72.2	60.7	73.6	76.3	58.7	65.2	59.9	67.8	73.8	82.4	83.4
2 to 4 different schools	24.1	33.6	23.2	20.8	38.1	26.8	34.7	27.5	24.6	14.3	14.5
5 or more different schools	3.7	5.7	3.3	2.9	3.2	8.0	5.4	4.7	1.6	3.4	2.1
Time spent on homework per week											
None	2.2	5.6	1.2	1.3	6.7	1.7	1.2	3.6	2.0	1.7	1.1
1 hour or less	27.5	40.5	24.1	26.6	38.3	38.3	25.3	35.8	21.4	30.3	14.7
2 to 3 hours	38.0	35.7	39.6	38.0	41.7	29.2	39.2	32.6	39.3	34.5	46.0
4 to 6 hours	17.3	11.1	17.1	20.7	8.3	15.8	16.9	16.1	20.9	16.0	18.3
7 or more hours	15.1	7.1	18.0	13.4	5.0	15.0	17.5	11.8	16.3	17.7	20.0
Students' perception of school[d]											
Teachers interested in students	81.9	74.0	78.5	85.0	60.0	80.0	84.0	85.6	84.6	71.2	88.2
Discipline is fair	83.9	68.3	70.8	88.2	75.4	86.6	86.4	86.3	91.8	83.1	89.4
Student feels put down	18.7	20.3	13.4	22.3	17.0	24.6	16.6	17.3	15.9	22.0	20.2
Student feels unsafe	23.5	19.8	28.5	25.8	31.2	24.4	16.5	18.7	19.0	37.0	22.3
Parental contact with school[b]											
Attended school meeting											
Never	42.6	50.9	33.5	38.8	50.9	57.7	57.2	52.4	21.0	23.4	49.0
1 or 2 times	36.9	37.9	40.1	40.6	38.6	30.8	29	36.9	39.8	41.1	32.6
3 or more times	20.5	11.2	26.4	20.6	10.5	11.5	13.8	10.7	39.3	35.5	18.4
Students' future expectations											
Plans to graduate from high school	99.7	100.0	99.6	100.0	98.5	100.0	100.0	99.3	100.0	100.0	99.3
Plans to graduate from college	64.9	61.9	66.9	74.4	49.2	47.5	71.4	53.9	74.9	63.0	65.9
Plans to have a professional career at age 30	32.0	21.9	42.3	44.0	26.8	20.9	20.2	22.3	52.9	31.5	22.1
Total sample size	1,953	126	261	312	66	120	169	283	199	120	297

Source: MDRC calculations from the Career Academies Student Baseline Questionnaire.

Notes: [a]A student is defined as over-age for grade at the time of random assignment if she or he turns 15 before the start of the 9th grade (for the 9th grade Academies) or 16 before the start of the 10th grade (for the 10th grade Academies).

[b]Unless otherwise indicated, measures of student engagement and participation and parental contact with school were asked in reference to the first half of the current school year.

[c]School mobility is defined as the number of schools attended since the first grade beyond the number expected to result from promotions in grade level or graduations.

[d]For most students, the school of reference is the host high school for the Academy. However, for sites that recruit from outside the host high school (primarily the Academies starting in the 9th grade), students are referring to their middle or junior high school.

Sixty-five percent of the students planned to graduate from college, and 32 percent aspired to be professionals by age 30. This underscores the need for Career Academies to emphasize preparation for post-secondary education as well as for careers.

All of the Academies have enrolled a small number of students who were experiencing academic and behavioral difficulties prior to enrolling in the Academies. Eleven percent reported having received mostly Ds in math since the 6th grade. About 17 percent were disengaged from school, which was measured as cutting class regularly, having excessive absenteeism, or being sent to the office frequently for behavioral problems (not shown in the tables). This indicates that these Academies are not "creaming" by serving only easy-to-teach students.

One goal of this evaluation is to determine the effectiveness of the Career Academy movement for students who are at risk of educational failure. The following section assesses the degree to which students in the research sample are at risk.

II. Students at Risk of Educational Failure

A. Definition of at Risk of Educational Failure

The National Center for Educational Statistics (NCES) used the National Educational Longitudinal Study of 1988 (NELS:88), which surveyed a national sample of 8th graders, to define educational risk empirically.[3] This report uses the NCES definition to examine risk factors affecting students in this study's research sample.[4] NCES measured at-risk status through six indicators that have been shown to be associated with educational failure through retrospective analyses of students who dropped out of high school before graduation or had low achievement.[5] Students are considered to be at risk of educational failure if they have two or more of the following risk characteristics. Students with three or more characteristics are considered highly at risk.

---

[3]There are many ways to measure educational risk, including through physical, psychological, and behavioral characteristics of students. The criteria used to identify at risk students in the California Partnership Academies differs from that used by NCES. The California Academies use state-defined criteria that allow teachers more discretion in selecting students for their programs. For example, the California criteria include the broadly defined measure "a past record of low motivation or interest in school." Accordingly, the percentages of at-risk students in an Academy calculated using the NCES criteria may be lower than the percentages calculated by using the California Partnership Academies criteria.

[4]U.S. Department of Education, 1990.

[5]In 1990, NCES identified six characteristics associated with risk of educational failure based on a review of literature and research. In 1995, NCES conducted a retrospective analyses using longitudinal data available from NELS:90 and NELS:92 to determine if these indicators were good predictors of educational risk. These factors proved to be predictors of dropping out and low achievement. In the spring of 1992, four percent of students with no risk factors in the 8th grade had dropped out of high school, compared with 24 percent among students with multiple risk factors. In addition, students with multiple risk factors were approximately twice as likely to have tested at the basic level or below in mathematics and to have failed to complete a basic sequence of high school courses.

Six Student Variables Indicating Risk of Educational Failure

- lives in a single-parent household
- lives in a low-income household
- is home alone more than three hours a day
- neither parent has a high school diploma
- has a sibling who dropped out of high school
- student speaks limited English

B. Incidence of Risk of Educational Failure

Table 5.5 shows that, based on the six risk characteristics, 36 percent of the students are at some risk. Of these students, approximately 35 percent (or 12 percent of the full sample) are at high risk of educational failure (not shown in the table).

Table 5.5 also compares the educational risk of the research sample to the national sample from the NELS:88.[6] Based on this comparison, the research sample is substantially more at risk of educational failure than are most U.S. students. One-fifth of the 8th graders in the national sample have two or more risk characteristics, compared to one-third of the students in the research sample. It is notable that 53 percent of 8th graders in the national sample have no risk characteristics, compared to 27 percent of the students in the research sample used in this evaluation.

The magnitude of educational risk varies across the Academies. Table 5.6 compares the incidence of risk across sites. Almost half (49.2) of the students in the Public Service Academy (Washington, D.C.) are at risk of educational failure, compared to 22 percent of the students in the Academy for Aerospace Technology (Cocoa). A closer look at the degree of risk across Academies indicates that three of the sites have more students at high risk of educational failure (not shown on the table). Twenty percent of the students in the Business and Finance Academy (Pittsburgh) and 17 percent of the students in the Academy of Travel and Tourism (Miami) and in the Public Service Academy (Washington, D.C.) are at high risk of educational failure.

Students who are black, Hispanic, and Native American are more likely to be at risk of educational failure than are white and Asian students. To provide a better profile of the students at risk, each risk characteristic is disaggregated by students' gender and race/ethnicity in Table 5.7.

---

[6]When comparing the incidence of risk across samples it is important to note that the NELS:88 sample responded to the Student Questionnaire while in the 8th grade, but a large portion (80.5%) of the Career Academy sample responded when they were in the 9th grade.

In addition, two of the risk characteristics in the Career Academies Evaluation were constructed with slightly different meanings than in NELS:88, while still measuring the same condition. First, in the Career Academies Evaluation, the risk characteristic "low-income household" is self-reported by students and is defined as public assistance receipt. In the NELS:88 survey, income level is measured by a parent questionnaire and the risk characteristic "low-income household" is defined as a yearly income of less than $15,000. Second, in the Career Academies sample, the risk characteristic "student speaks limited English" was measured through a self-reported response of whether the student speaks English "not well" or "not at all." NELS:88 used a combination of student and teacher measures to define a measure called "Limited English Proficient."

Table 5.5

Career Academies Evaluation

Percentage of Students with Selected Characteristics Associated with Risk of Educational Failure: The Career Academies Evaluation Sample at the Time of Random Assignment and the NELS:88 Sample

Number of Risk Characteristics	Career Academy Sample		NELS Sample[a]
	Sample Size	Full Sample	National Sample
0	523	27.0 %	53.3 %
1	722	37.2	26.3
2 or more	694	35.8	20.4
Sample size		1,939	24,599

Sources: MDRC calculations from the Career Academies Student Baseline Questionnaire, and National Center for Education Statistics (1990).

Notes: Students in the Career Academies Evaluation sample with a minimum of three non-missing values on the six indicators of risk are included in the calculations.

Educational failure is defined as failing to achieve in school or dropping out of school.

The National Center for Education Statistics (1990) used six characteristics to define risk: living in a single-parent household, living in a low-income household, student speaks limited English, home alone at least three hours per day, has a sibling who dropped out of high school, and neither parent has a high school diploma.

Students with two or more risk characteristics are considered to be at risk of educational failure.

When comparing the samples, it is important to note that the NELS:88 sample responded to the student questionnaire while in the 8th grade, but a large portion (80.5 percent) of the Career Academies Evaluation sample responded when they were in the 9th grade. In addition, two of the risk characteristics in the Career Academies Evaluation were constructed with slightly different meanings than in NELS:88, while still measuring the same condition. First, in the Career Academies Evaluation, the risk characteristic "low-income household" is self-reported by students and is defined as public assistance receipt. In the NELS:88 survey, income level is measured by a parent questionnaire and the risk characteristic "low-income household" is defined as yearly income of less than $15,000. Second, in the Career Academies sample, the risk characteristic "student speaks limited English" was measured through a self-reported response of whether the student speaks English "not well" or "not at all." NELS:88 used a combination of student and teacher measures to define a measure called "Limited English Proficient."

[a]See National Center for Education Statistics (1990) for a description of how these percentages were calculated.

Table 5.6

Career Academies Evaluation
Percentage of Students in the Research Sample with Selected Characteristics Associated with Risk of Educational Failure at the Time of Random Assignment, by Site

Number of Risk Characteristics	Full Sample	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, D.C.	Watsonville Video Academy Watsonville, CA
0 or 1	64.2 %	77.8 %	60.3 %	58.2 %	60.0 %	73.3 %	75.7 %	60.6 %	65.3 %	50.8 %	66.9 %
2 or more	35.8	22.2	39.7	41.8	40.0	26.7	24.3	39.4	34.7	49.2	33.1
Sample size	1,939	126	257	311	65	120	169	282	199	120	290

Source: MDRC calculations from the Career Academies Student Baseline Questionnaire.

Notes: See Table 5.5.

BEST COPY AVAILABLE

Table 5.7

Career Academies Evaluation

Percentage of Students in the Research Sample with Selected Characteristics Associated with Risk of Educational Failure at the Time of Random Assignment, by Gender and Race/Ethnicity

Background Characteristic	Sample Size	Risk Characteristic: Single Parent Household[a]	Low-Income Household	Home Alone More Than 3 Hrs/Day	Neither Parent Has a High School Diploma	Has Sibling Who Dropped Out of High School	Student Speaks Limited English	Number of Risk Characteristics: None	One	Two or More
Full Sample	1,939	38.5 %	24.3 %	13.8 %	26.6 %	20.6 %	8.1 %	27.0 %	37.2 %	35.8 %
Gender										
Male	858	36.8	20.1	12.9	21.7	18.8	7.2	31.5	38.1	30.4
Female	1,081	39.9	27.5	14.6	30.5	22.1	8.8	23.4	36.5	40.1
Race/ethnicity										
Black	577	62.8	30.1	18.4	7.4	22.4	1.1	21.3	36.9	41.8
White	189	27.1	7.4	12.0	6.9	16.6	3.8	48.7	36.5	14.8
Hispanic	1,017	28.4	23.3	11.7	43.9	20.6	13.3	24.5	37.6	38.0
Asian	117	25.6	29.7	12.9	9.0	23.5	5.2	38.5	34.2	27.4
Native American	13	45.5	45.5	15.4	22.2	0.0	0.0	30.8	38.5	30.8

Source: MDRC calculations from the Career Academies Student Baseline Questionnaire.

Notes: See Table 5.5.

[a]The risk characteristic "single-parent household" is defined as living with only the father or the mother, or living with other individuals (such as grandparents, etc.).

Black and Native American students in the research sample are considerably more likely than white, Hispanic, and Asian students to live in single-parent households. Approximately 50 percent of black and Native American students said they lived in single-parent households, compared to 27 percent of the white, Hispanic, and Asian students. The proportion of Hispanic students who said that neither of their parents has a high school diploma is higher than for other racial/ethnic groups. In addition, Hispanic students were more likely to report that they speak limited English. Thus, multiple risk characteristics may affect many Hispanic students in this study. The large number of Hispanic students in the sample may provide valuable information on the benefits of the Career Academy model in creating a school environment that specifically addresses the risk characteristics that affect this group's members.

III. Key Subgroups for the Career Academies Evaluation

This study can help determine which students will benefit most from the Career Academy model by measuring the Academies' impacts on key subgroups of students. The descriptive analyses of the demographic and educational characteristics of the research sample at the time of random assignment suggest six sets of subgroups defined by the following criteria:

- degree of educational risk
- prior academic success in school
- level of disengagement from school
- over-age for grade
- race/ethnicity
- gender

The descriptive analyses suggest that subgroups within these classifications may likely vary in the degree and nature of their involvement with the Career Academies. The impact analyses, whose results will be presented in future reports, will measure the effects of the Career Academies on these six subgroups of students.

CHAPTER 6

ENROLLMENT AND ATTRITION PATTERNS

As discussed in Chapter 4, students are selected for the Career Academies during the spring semester before they are scheduled to enroll in the programs. Thus, one challenge the Academies face is maintaining students' commitment to the programs over the summer so that they carry through with enrollment in the fall. Once students are enrolled, Academies face the additional challenge of keeping them in the program. This chapter examines the patterns by which students enroll and stay in (or leave) the Career Academies over a two-year period.

The analysis of Academy enrollment rates is important for several reasons: It shows the extent to which Career Academies retain or lose students, when students are likely to leave the Academies, and where they go when they leave. This information can be used to develop further strategies aimed at reaching out to students at critical times when they are likely to start losing interest or become disengaged from the programs.

This analysis also demonstrates the challenges attrition presents for education research. In this evaluation, for instance, some of the students who were randomly assigned to the program group will not enroll in the Career Academies, and others will leave the Academies prematurely. As a result, it will be important for future analyses to account for the level of exposure program group students have to the Academies. If very few are exposed to the Academies, then their experiences are likely to be very similar to those of students in the control group. If a large proportion of the program group students enroll and stay in the Career Academies, and the students in the control group are involved in programs that are distinct from the Academies, then the educational experiences of the two groups are likely to be quite different. Finally, the patterns of enrollment and attrition will also affect data collection activities and the research team's capacity to follow and monitor the progress of these students. For this reason, a crucial aspect of the early stage of this study is establishing procedures to locate and contact students on a regular basis in order to keep track of them.

Before turning to the results of the analyses discussed in this chapter, it is important to recognize that several factors may influence whether students enroll in the Career Academies initially and, if they do enroll, whether they remain in the programs throughout high school. First, the Academies are voluntary: Students enroll by choice; they are not required to participate. Thus, students may choose never to enroll because they lose interest over the summer months or because they become more interested in other alternatives. For the same reasons, they may choose to leave the programs after enrolling. Second, the Academy staff has the discretion to dismiss students from the program. Although Academies work hard to enroll and keep their students, those who perform poorly or have attendance or disciplinary problems may be asked to leave to preserve program quality. Third, many of the students selected for Career Academies have a history of low achievement and lack of interest in school, suggesting that they may be at risk of dropping out. Other students are from low-income families who may move frequently. Both of these factors can account for students' not enrolling in the Academy or for their leaving prematurely, just as they can cause students to leave the regular high school programs. As discussed in Chapter 4, the Career Academies anticipate that a certain proportion of the students they select for the programs will either never enroll or will leave the programs after a semester or two. For this reason, they usually select a few more students than they have the capacity to serve initially.

The analysis in this chapter focuses on the 703 students who were randomly assigned to the study's program group in 1993 and 1994 from the first seven sites to join the study.[1] These students were scheduled to enroll in the Career Academies during the 1993-94 and 1994-95 school years, respectively. By the second semester of the 1994-95 school year – the last period for which data are available for this analysis – the 344 program group students who were randomly assigned in 1993 (Cohort One) had completed two years in the study, and the 359 program group students who were randomly assigned in 1994 (Cohort Two) had completed one year in the study. For each semester following their random assignment, data were collected on whether these students were still enrolled in the participating Career Academy, whether they had enrolled elsewhere in the high school in which the Academy is located (referred to as the "host high school"), or whether they had left the host high school.

I. Rates of Initial Enrollment in the Career Academies

The top panel of Table 6.1 presents the percentage of program group students who enrolled in the Career Academies in the first year following random assignment. Across all seven sites included in this analysis, 84 percent of these students enrolled in a Career Academy program. Given the various forces noted earlier that may affect students' decisions or capacities to enroll in the Academies, this enrollment rate can be viewed as substantial. Presumably, enrollment would have been even lower had the Academies not employed the strategies discussed in Chapter 4 to contact students and minimize attrition over the summer. Nevertheless, the fact that 16 percent of the students who were selected to participate still did not enroll highlights the challenge Academies face in maintaining students' commitment to the programs over the summer months. It also points to the difficulty Academies face in planning for appropriate enrollment levels.

Table 6.1 also shows that initial enrollment rates varied across Career Academies, from approximately 92 percent at the Electronics Academy at Independence High School (San Jose) and the Health Professions Academy (Socorro), to 69 percent at the Academy of Finance (Baltimore). One possible explanation for the relatively low enrollment rate for the Academy of Finance is that the program begins in the 9th grade and is one of several high school magnet programs from which 8th grade students in Baltimore can choose. As a result, many of the 8th grade students who were selected for the program did not live close to the host high school and would have had to travel a long distance to attend. Some of these students may have lost interest in the Academy when they realized how far they would have to commute and chose instead to attend a school closer to home. By contrast, the Health Professions Academy (Socorro), which also begins in the 9th grade, had a high enrollment rate, which may due, in part, to the fact that most of these 8th grade students lived relatively close to the host high school and would have attended that school anyway. The Electronics Academy in Independence High School (San Jose), which also had a high enrollment rate, begins in the 10th grade.

---

[1]The first seven sites to join the study were the Academy of Finance and Lake Clifton-Eastern High School (Baltimore); the Academy of Travel and Tourism and Miami Beach High School (Miami Beach); the Electronics Academy and Independence High School (San Jose); the Global Business Academy and Valley High School (Santa Ana); the Electronics Academy and Silver Creek High School (San Jose); the Health Professions Academy and Socorro High School (Socorro); and the Watsonville Video Academy and Watsonville High School (Watsonville). Students from the remaining three sites and other students from the first three sites who joined the study in 1995 will be included in future analyses.

Table 6.1

Career Academies Evaluation

Rates of Enrollment in the Career Academies Among Program Group Students

Enrollment Status	Full Sample	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Watsonville Video Academy Watsonville, CA
All program group students[a]								
Enrolled in the first year following random assignment[b]	84.2 %	69.4 %	80.0 %	92.4 %	82.8 %	88.8 %	91.6 %	86.1 %
Sample size	703	98	115	66	93	116	107	108
Program group students who enrolled in a Career Academy[c]								
Enrolled at the end of the second year following random assignment[d]	72.9 %	71.9 %	75.0 %	72.4 %	84.6 %	72.5 %	68.0 %	68.1 %
Sample size	292	32	44	29	39	51	50	47

Source: MDRC calculations from Career Academies student enrollment data collected through the 1994-95 school year.

Notes: [a] This sample includes students who were randomly assigned to the program group in 1993 and 1994 from the first seven sites to join the study.

[b] "Enrolled in the first year" includes all program group students who enrolled in the Career Academy during the first or second semester following random assignment.

[c] This sample includes all students from the first seven sites to join the study who were randomly assigned to the program group in 1993.

[d] "Enrolled at the end of the second year" includes all program group students who enrolled in the Career Academy during the fourth semester following random assignment.

BEST COPY AVAILABLE

Students selected for that program were already enrolled in the host high school and were simply changing programs within the school.

Although not shown in Table 6.1, approximately 56 percent of those who did not enroll in the Career Academies left the host high school in which the Academies are located. Field research indicated that most of these students enrolled in other high schools (usually within the same district), although some may have dropped out altogether. Transfers out of the host high school suggest that family mobility may explain part of the initial attrition patterns.

The remaining students (approximately 44 percent of the students who did not enroll in the Academies) were enrolled in the host high school. Field research suggested some possible explanations for students' switching from the Academy to other programs or classes within the host high school. For example, some students were reported to have failed a class necessary for enrollment in the Academy. Other students were reported to have found more interesting options (such as an open slot at a desirable college preparatory program or another special program within the host high school). Other students indicated to Academy staff that they had simply lost interest in the program.

II. Retention Patterns over Four Semesters Following Initial Enrollment

Figure 6.1 illustrates the flow through the Academies of 100 typical Academy enrollees over a two-year period. It is based on the 292 program group students from Cohort One who initially enrolled in an Academy during the 1993-94 school year and thus had the opportunity to be enrolled for up to two years.

The second column of Figure 6.1 shows that over 90 percent of the students who initially enrolled in the Career Academies during the first semester following their selection for the programs were still enrolled during the second semester. Among those who left the Academies following the first semester, approximately 75 percent left the host high school.

The third column of Figure 6.1 shows that 82 percent of the students who initially enrolled in the Academies returned for the start of the second year. The students who left the Academies after the first year were equally likely to have enrolled in the host high school or to have left the high school. Field research indicated that some students were asked to leave the Academies for academic or disciplinary reasons. Still others may have decided that the Academy was not a good fit for them or that they were no longer interested in the career theme after a year in the program.

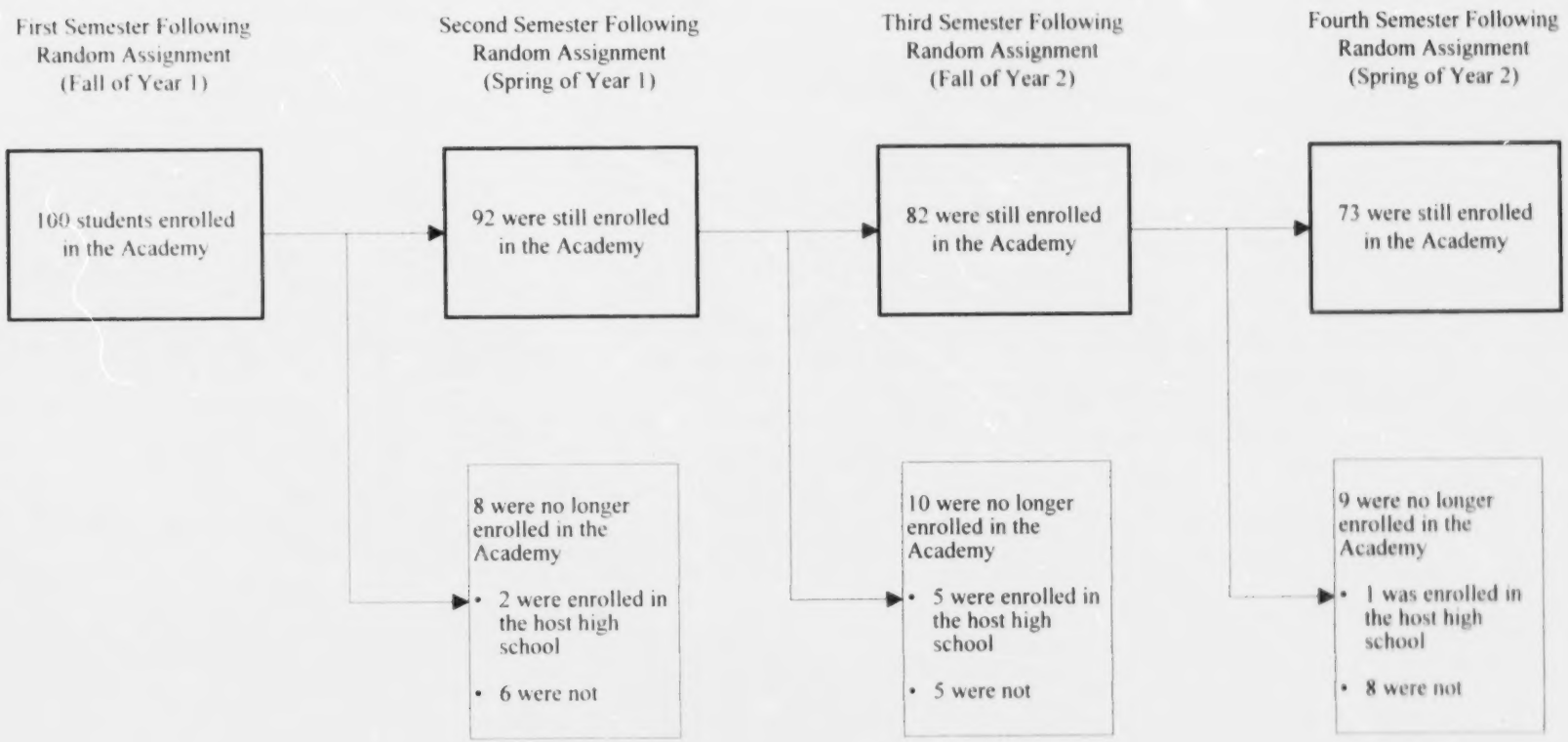
The pattern of retention in the Academies going into the second year also varies somewhat across sites. For example, the Electronics Academy at Silver Creek High School (San Jose) and the Health Professions Academy (Socorro) retained 87 and 84 percent, respectively, of the students who initially enrolled. By contrast, 75 percent of the students who initially enrolled in the Academy of Finance (Baltimore) returned to enroll at the start of the second year. These patterns are roughly consistent with the patterns of initial enrollment across sites.

Column four of Figure 6.1 shows that 73 percent of the students who initially enrolled in a Career Academy were still enrolled four semesters later. Although not shown in the figure, 89 percent of the students who returned to the Academies for the second year remained into the second semester of that year. As was the case during the first year, most of the students who left the Academies after the first semester of the second year also left the host high school.

Figure 6.1

Career Academies Evaluation

The Flow Through the Career Academies for 100 Typical Career Academy Enrollees Within Four Semesters After Initial Enrollment


First Semester Following Random Assignment (Fall of Year 1)
Second Semester Following Random Assignment (Spring of Year 1)
Third Semester Following Random Assignment (Fall of Year 2)
Fourth Semester Following Random Assignment (Spring of Year 2)
100 students enrolled in the Academy
92 were still enrolled in the Academy
82 were still enrolled in the Academy
73 were still enrolled in the Academy
8 were no longer enrolled in the Academy
• 2 were enrolled in the host high school
• 6 were not
10 were no longer enrolled in the Academy
• 5 were enrolled in the host high school
• 5 were not
9 were no longer enrolled in the Academy
• 1 was enrolled in the host high school
• 8 were not

Source: MDRC calculations from Career Academies student enrollment data collected through the 1994-95 school year.

Note: Measures are based on 292 students who initially enrolled in a Career Academy during the first school year following random assignment. This represents 85 percent of the 344 students who were randomly assigned to the program group in 1993 from the first seven sites to join the study.

The retention rate after two years varies somewhat across the Academies. The second panel of Table 6.1 shows the percentage of initial enrollees who were still enrolled in the Academies at the end of the second year following random assignment. With rare exceptions, each of these students was enrolled in a Career Academy for two full school years.[2] In all, the Academies retained approximately 73 percent of the students who initially enrolled in their programs. The bottom panel of Table 6.1 also shows that 85 percent of the students who enrolled in the Electronics Academy in Silver Creek High School (San Jose) remained throughout two years, compared to 68 percent of the students who initially enrolled in the Watsonville Video Academy (Watsonville) and the Health Professions Academy (Socorro).

Further analysis is necessary to explain differences in attrition across Academies. However, 70 percent (not shown in timetable) of the students who did not remain in the Academies for two years left their host high schools, suggesting that factors other than the Academies, such as families relocating or students dropping out of high school altogether, may account for much of the attrition. Future reports will include analyses of the characteristics of students who leave the Academies and will provide additional information on the reasons that students do not enroll or enroll and then leave.

[2]Two students initially enrolled in a Career Academy after the first semester of the first year.

CHAPTER 7

TEACHERS IN THE CAREER ACADEMIES

This chapter examines the extent to which Career Academy teachers view their work and work environment differently from their colleagues who teach the same subjects in the host high schools. It explores whether the structural changes created by the Career Academy approach are associated with differences in teachers' level of collaboration with each other, in their classroom resources and influence over their work, and in their relationships with students. To the extent that Career Academies provide teachers with professional opportunities that they value and that enhance their teaching beyond what is available to their colleagues in the regular high school, the approach holds substantial promise for both improving the school as a workplace and for enhancing student outcomes.

This chapter explores the extent to which the Career Academy approach can be adapted to a wide range of circumstances and implemented by teachers with a broad range of experience and training. It examines several key issues such as whether Career Academies require distinctive types of teachers, such as those with extensive experience or specialized training; whether Academies require significant reductions in teachers' workloads through reduced teaching responsibilities or smaller class sizes; and whether Academies enhance the work of typical high school teachers with typical workloads. The extent to which Career Academies require exceptional teachers or depend on significant reductions in teachers' workloads may determine their capacity to serve a large proportion of high school students. The chapter's examination of teachers' background characteristics and some key measures of their workloads provides some insight into this issue.

This chapter also describes the results of the Career Academies Evaluation Teacher Questionnaire, which was administered to Academy and non-Academy teachers in seven of the 10 high schools participating in the study.[1] Completed questionnaires were obtained from 42 Career Academy teachers and 348 non-Academy teachers from the schools' English, math, science, social studies, industrial arts, business, electronics, video arts, and health departments.[2] These subject area departments are the ones represented in the various Career Academy programs; the sample of non-Academy teachers was confined to these departments in an effort to reduce the possibility that differences between Academy and non-Academy teachers could be due to differences in subject area

---

[1]In April, May, and June of 1995, the questionnaire was administered in the following seven high schools: Lake Clifton-Eastern (Baltimore), Socorro, Miami Beach, Independence (San Jose), Silver Creek (San Jose), Valley (Santa Ana), and Watsonville. These were the first seven sites to join the study, and each had students in the research sample at the time the questionnaire was administered. The questionnaire will be administered in the remaining three high schools in the spring semester of the 1995-96 school year.

[2]Completed questionnaires were obtained from 42 of the 45 Career Academy teachers across these seven sites (a 93 percent response rate) and from 348 of the 450 non-Academy teachers (a 77 percent response rate). It is not possible to examine differences in background characteristics between respondents and non-respondents because no information is available about the non-respondents except their high school and department affiliation.

specialties. The questionnaire asked teachers about characteristics of their current classes, instructional strategies, work environment, and background and teaching experience.[3]

I. Teachers' Background Characteristics

Table 7.1 presents data on the background characteristics that were measured in the Teacher Questionnaire. These measures show how much of the Career Academies' distinctiveness might be attributed to their teachers' background characteristics, qualifications, and experience. Table 7.1 indicates that Academy and non-Academy teachers are similar in many ways, including their representation in race/ethnicity categories, education credentials, type of teaching certificates they hold, and average number of years they have been teaching.

Table 7.1 also highlights some differences between Academy and non-Academy teachers.[4] Although both groups have the same average number of years of teaching experience, Academy teachers are much more likely to fall in the middle range of teaching experience (4 to 19 years) than their non-Academy colleagues. Another difference reflects the central role of industry-related teaching in every Career Academy: Vocational education teachers make up a higher percentage of Academy teachers than of non-Academy teachers.[5]

Table 7.1 shows that Academy and non-Academy teachers have many similar characteristics. It is important to recognize, however, that some unmeasured characteristics may differentiate Academy from non-Academy teachers. Teachers generally volunteer to be part of the Career Academies, suggesting, for instance, that Academy teachers may be more willing to try something different than are other teachers. Also, as noted in Chapter 3, Career Academies often require that teachers be flexible, open to working with students and colleagues in different ways, and willing to take on additional administrative responsibilities. In some cases, the existing Academy teachers are involved

---

[3]It is important to note that the information obtained by the Teacher Questionnaire reflects the perceptions and characteristics of teachers who taught in the Career Academies and the host high schools during the 1994-95 school year. Since the Academies and high schools are dynamic institutions and experience some teacher turnover, the findings presented in this chapter may be somewhat different from those that would have been obtained from data collected in prior or subsequent years.

[4]An important issue for interpreting the findings in the tables in this chapter concerns the "statistical significance" of the differences in distribution of characteristics among Academy teachers and non-Academy teachers. Statistical significance is a measure of the degree of certainty that a difference was actually found. If a difference is statistically significant, then one may conclude with some confidence that there was a real difference between Academy and non-Academy teachers' responses. If a difference is not statistically significant, then it may be the product of chance. The asterisks in Tables 7.1, 7.2, and 7.3 indicate the level of certainty where: Three asterisks indicate a 1 percent probability that a measured difference was due to chance; two asterisks indicate a 5 percent probability; and one asterisk indicates a 10 percent probability. Unless otherwise indicated, the differences between Academy and non-Academy teachers discussed in this chapter are statistically significant.

[5]This is also partly an artifact of the sampling strategy in which the Teacher Questionnaire was targeted to the non-Academy vocational, technical, or business teachers who taught classes in the same occupational area as the Academy teachers. Naturally, there were other vocational education teachers in the high school whom MDRC did not survey. It is estimated that approximately 20 percent of all high school teachers are vocational education teachers (U.S. Department of Education, 1992).

Table 7.1

Career Academies Evaluation

Selected Background Characteristics of Academy and Non-Academy Teachers

Characteristic	Academy Teachers	Non-Academy Teachers	All Teachers	
Average age (in years)	45.6	45.5	45.5	
Age (%)				
Under 30	7.3	5.2	5.4	
30 to 39	9.8	20.9	19.7	
40 to 49	51.2	36.7	38.3	
50 or over	31.7	37.3	36.7	
Gender (%)				
Female	40.5	48.8	47.9	
Male	59.5	51.2	52.1	
Race/ethnicity (%)				
White, non-Hispanic	64.3	65.0	64.9	
Black, non-Hispanic	11.9	8.7	9.0	
Hispanic	23.8	21.4	21.6	
Other	0.0	5.0	4.4	
Highest degree completed (%)				
Bachelors	57.1	57.4	57.4	
Masters or more	42.9	42.6	42.6	
Type of teaching certification (%)				
Regular/standard	92.9	90.5	90.8	
Other (includes probationary, temporary, or provisional)	7.1	9.5	9.2	
Teaching experience (in years)	15.4	16.2	16.1	
Teaching experience (%)				
3 years or less	2.4	10.6	9.7	**
4 to 9 years	33.3	21.8	23.1	
10 to 19 years	35.7	24.8	26.0	
20 years or more	28.6	42.8	41.2	
Years teaching in current school	9.8	10.2	10.1	
Main teaching assignment (%)				
Math/science	28.6	44.2	42.5	***
English, languages	21.4	31.6	30.5	
Social studies	21.4	18.1	18.5	
Vocational education	28.6	6.0	8.5	
Sample size	42	348	390	

Source: MDRC calculations from the Career Academies Evaluation Teacher Questionnaire.

Notes: Calculations for this table are based on data collected in April, May, and June 1995 for 390 Career Academy and non-Academy teachers from the first seven sites to join the study: Lake Clifton/Eastern High School (Baltimore, MD), Miami Beach Senior High School (Miami, FL), Independence High School (San Jose, CA), Silver Creek High School (San Jose, CA), Valley High School (Santa Ana, CA), Socorro High School (Socorro, TX), and Watsonville High School (Watsonville, CA).

A chi-square or t-test was used to test differences between Academy and non-Academy teachers. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent. For categorical variables (e.g., main teaching assignment), the significance level refers to difference in the distribution of such a variable across Academy and non-Academy teachers.

in recruiting or interviewing other prospective teachers, and their preferences are considered in the decision-making process. They are often interested in attracting others like themselves who will fit in well with the team and make unique contributions to the program.

Field research indicates that most Career Academy teachers, however, do not see themselves as extraordinary. As discussed below, many report that Career Academies played a key role in facilitating their teaching beyond what was available to them in the regular high school. This suggests, along with the general similarities in measured characteristics, that differences between Academy and non-Academy teachers in such areas as collaboration, classroom practice, and relationships with students are likely to be due, at least in part, to differences between the Academy and non-Academy work environments.

II. Characteristics of Teachers' Workloads

To understand Career Academies, it is important to consider whether their distinctiveness might be related to aspects of teachers' workloads that are not directly related to the key components of the Academy approach. Here, workload is defined as the number of classes they teach, the number of students they teach (in each class and overall), and the amount of time they spend on school-related activities. Previous research indicates that a significant reduction in class size (to about 15 students per class) can, in itself, improve student achievement.[6] As indicated below, however, class size reductions of this magnitude are not generally found in the Career Academies.

Table 7.2 compares the workloads of Academy teachers and non-Academy teachers, revealing several differences. First, Academy teachers are less likely to teach five classes (the typical courseload for high school teachers in the participating schools) than their non-Academy colleagues. As noted in Chapter 3, some of the participating Academies have additional resources that enable them to provide teachers with an extra planning period and, thus, a reduced teaching load. This allows Academy teachers to work on curriculum development and student-related issues, and to take on more of the administrative responsibilities for the program. Some of the Academies can offer an extra planning period to as many as four teachers, while others can offer it to only the lead teacher.

Academy teachers also have, on average, three fewer students enrolled per class than their non-Academy colleagues. Also, Academy teachers are more likely to have fewer than 20 students per class and less likely to have more than 30 students enrolled per class than other teachers. Overall, Academy teachers have about 22 fewer students enrolled across all their classes compared to their non-Academy colleagues.

Table 7.2 also shows that Academy teachers reported attendance rates in their classes that average about 3 percentage points higher than those of classes taught by non-Academy teachers. This means that the difference in the daily attendance by students of Academy teachers (22 students per class) and non-Academy teachers (23 students per class) is somewhat smaller than their class enrollments suggest. While the higher attendance rates in classes taught by Academy teachers increase the number of students in class on a daily basis (relative to their non-Academy colleagues' classes), it also reduces some of the flux in classroom membership that plagues some teachers. When a substantial number of students are absent from class, teachers often have to adjust their lesson plans to accommodate those who are behind, while at the same time helping the remaining students to move ahead.

---

[6]Glass et al., 1982; Finn and Achilles, 1990.

Table 7.2

Career Academies Evaluation

Selected Characteristics of Academy and Non-Academy Teachers' Workloads

Characteristic	Academy Teachers	Non-Academy Teachers	All Teachers	
Number of classes taught (%)				
3 or fewer	19.0	9.5	10.5	***
4	40.5	14.1	16.9	
5 or more	40.5	76.4	72.6	
Number of scheduled hours per class (per week)	5.0	4.7	4.7	*
Number of scheduled hours for all classes (per week)	20.2	21.6	21.4	*
Number of hours spent outside regular school hours on school-related activities (per week)	14.6	14.0	14.1	
Average number of students enrolled per class	24.0	26.7	26.4	***
Average number of students enrolled per class (%)				
20 or fewer	26.2	13.9	15.2	***
21 to 25	35.7	22.3	23.7	
26 to 30	26.2	33.2	32.5	
31 or more	11.9	30.6	28.6	
Number of students enrolled in all classes	101.0	123.4	120.9	***
Average daily attendance per class (%)	89.6	86.6	86.9	**
Daily attendance per class (%)				
80% or lower	5.0	14.8	13.8	
81 to 85%	12.5	14.8	14.6	
86 to 90%	27.5	29.4	29.2	
91% or higher	55.0	41.0	42.4	
Hours of homework given per class (per week)	2.6	2.4	2.5	
Hours of homework given per class (per week) (%)				
1 or less	12.5	18.6	18.0	
2	52.5	50.9	51.0	
3 or more	35.0	30.5	31.0	

(continued)

Table 7.2 (continued)

Characteristic	Academy Teachers	Non-Academy Teachers	All Teachers	
Achievement level of most students enrolled in teacher's most typical class (%)				
Higher than average	36.6	26.9	28.0	
Average	39.0	49.7	48.5	
Lower than average	9.8	12.7	12.4	
Broad cross-section	14.6	10.7	11.1	
"Track" of teachers' most typical class (%)				
Advanced placement/honors	9.8	7.1	7.3	***
College preparatory/academic	56.1	37.4	39.4	
General	9.8	43.8	40.2	
Vocational/technical/business	24.4	5.6	7.6	
Other	0.0	6.2	5.5	
Sample size	42	348	390	

Source and Notes: See Table 7.1.

Academy and non-Academy teachers reported spending 14 to 15 hours per week during non-school hours on school-related work and activities. Both groups reported that they assigned similar amounts of homework (in terms of hours per student) each week.

III. Career Academies as "Teacher Learning Communities"

The structure of large comprehensive high schools can inhibit teachers' autonomy and flexibility in teaching methods, which, in turn, can limit their opportunities for professional growth and development. Researchers have pointed to several factors within large high schools that contribute to this problem, including few chances for teachers to meet and work together, minimal influence over their work and the school environment, and a lack of material resources.[7]

Overall efforts to improve schools may well depend on providing opportunities for teachers' professional development.[8] Recent research by Milbrey W. McLaughlin and Joan E. Talbert at Stanford University highlights the importance of "teacher learning communities" for stimulating and sustaining teachers' learning and growth.[9] Teacher learning communities consist of groups of teachers who collaborate with each other within organizational boundaries, such as schools or subject area departments within schools. These communities can promote greater teacher professionalism, including shared standards for curriculum and instructional strategies, norms for relationships with students and colleagues, and conceptions of good teaching practice. McLaughlin and Talbert call for policies that create more opportunities for teachers to engage in these communities.[10]

Open-ended interviews with several Career Academy teachers provide evidence that these programs can help promote the institution of such communities. Many teachers reported, for instance, that they were originally drawn to the Academies, and continue to stay in them, because of the opportunities for teamwork and mutual support that stem from working with a shared group of students and spending more time with colleagues. These teachers also reported that they felt professionally isolated prior to joining the Academy. The following comments are typical of many teachers' views:

> Teamwork is the key to this program [the Career Academy]. . . . The mutual support we can provide for each other, both professionally and personally, enables us to sustain a level of commitment to the kids that is not usually possible out in the rest of the school. . . . There is so much isolation in the rest of the school. . . . Working so closely with this group of teachers, there is a willingness to go the extra mile.

Teachers highlighted the Academy's support for their collaboration on such issues as improving students' academic performance and behavior, curriculum development, setting administrative policies, and assessing needs for additional resources. Many felt that the Career Academies enabled them to be better teachers; to focus on the personal, as well as the academic, needs of their students; and to increase their use of new materials in their classes. Several teachers credited Career Academies with revitalizing their commitment to teaching.

Both Academy and non-Academy teachers confront many of the same challenges in their work.

---

[7]Johnson, 1990; McLaughlin, 1993.

[8]Sarason, 1990.

[9]Talbert and McLaughlin, 1994; McLaughlin and Talbert, 1993.

[10]McLaughlin and Talbert, 1993.

These include inadequate resources, lack of influence over school policies and administrative decisions, and stressful relationships with their colleagues. Overall, however, the Teacher Questionnaire data indicate that Career Academy teachers are more satisfied with their school environment, jobs, and relationships with their colleagues than are non-Academy teachers. Following is a summary of the findings of the Teacher Questionnaire.

A. Professional Relationships and Collaboration

The first row in Table 7.3 summarizes teachers' ratings of six statements in the Teacher Questionnaire,[11] including, "I feel I have many opportunities to learn new things," "My job provides me with continuing professional stimulation and growth," "I work closely with other teachers to solve problems, not just talk about them," "Most other teachers with whom I work are continually learning and seeking new ideas," "I work closely with other teachers who support my efforts to try out new ideas," and "Most other teachers with whom I work seldom evaluate the curriculum and classroom activities."

Both Academy and non-Academy teachers reported that they experienced some of these aspects of a teacher learning community.[12] However, when responses to the six statements above were summarized, Academy teachers were more likely than non-Academy teachers to have given high ratings to these dimensions of a teacher learning community.[13] These teachers were considered to believe that they were part of a strong teacher learning community. Their responses suggest that Career Academies provide more support for the growth of teacher learning communities than does the rest of the host high school, and that a large majority of Academy teachers see themselves as part of a strong teacher learning community.

B. Teacher Collaboration

Teachers' collaboration with colleagues is a key part of belonging to a learning community. Opportunities for collaboration also affect the extent to which teachers can develop integrated curriculum materials and strategies for supporting students who are having difficulty in school (see Chapter 3).

The second item under the first category shown in Table 7.3 summarizes teachers' ratings of four statements regarding their collaboration with colleagues: "I work with other teachers to develop materials and activities for class," "I meet regularly with other teachers to discuss different ways of teaching," "I meet regularly with teachers to discuss problems I have with students," and "I make a conscious effort to coordinate course content with teachers in other subjects." Nearly two-thirds of all teachers in the sample reported that they collaborated with other teachers in at least one of these areas (not shown the table). The difference between Academy and non-Academy environments is evident,

---

[11]See Appendix A for a complete list of indicators and items taken from the Teacher Questionnaire data for this report.

[12]This is indicated by the fact that over 90 percent of all the teachers in the sample agreed with one or more of the six items used to construct the "teacher learning community" variable presented in the first panel of Table 7.3.

[13]The response set for each statement ranged from 1 (strongly disagree) to 6 (strongly agree). An average of 5 or higher on these statements was considered indicative that respondents felt they were part of a strong teacher learning community. Table 7.3 shows the percentage of Academy and non-Academy teachers whose response to these six statements was an average of 5 or higher.

Table 7.3

Career Academies Evaluation

Career Academy and Non-Career Academy Teachers' Perceptions of Aspects of Their Work

Measure	Academy Teachers	Non-Academy Teachers	Difference
Professional relationships and collaboration	(%)	(%)	(%)
Teachers who said that they were part of a strong teacher learning community	73.2	56.5	16.8 **
Teachers who reported a high degree of collaboration with their colleagues to develop materials and discuss students and other school-related issues	60.2	42.7	17.5 **
Resource adequacy			
Teachers who said that they had adequate educational resources for their optimal success as teachers	61.1	45.3	15.8 *
Influence over areas of work			
Teachers who said that they had considerable influence over instruction-related areas	76.0	54.2	21.8 ***
Teachers who said that they had considerable influence over administrative policies	37.3	14.8	22.5 ***
Teachers' relationships with students			
Teachers who placed a high degree of emphasis on personalized relationships with students	69.6	51.0	18.6 **
Teachers who placed a high degree of emphasis on caring for students	67.2	54.8	12.5
Sample size	42	348	

Source and Notes: See Table 7.1.

The measures shown above are summaries of several statements that teachers rated on the extent to which they agreed with them. See Appendix A for a list of measures and items used from the Career Academies Evaluation Teacher Questionnaire data.

however, in the extent to which teachers reported a high degree of collaboration with colleagues.[14] Table 7.3 shows that 60 percent of Academy teachers reported a high degree of collaboration, compared to 43 percent of non-Academy teachers. Thus, collaboration among teachers is more widespread and extensive in the Academies than elsewhere in the host high schools.

C. Resource Adequacy and Influence over Work

The "resource adequacy" category in Table 7.3 summarizes teachers' ratings of seven statements regarding the extent to which they felt that resources (both non-material and material) were adequate to support their teaching success: "I have a place to get together with colleagues," "I have time to meet with colleagues," "I have time to participate in conferences/workshops," "I have opportunities to address students' problems," "I have instructional equipment for my classroom," "I have the capacity to copy instructional materials for students in my class," and "I have the opportunity to discuss specific students with my colleagues." Nearly 80 percent of all teachers surveyed felt that at least some of these resources were adequate (not shown in the table). Academy and non-Academy teachers differed in the frequency with which they judged most or all of these resources to be adequate: 61 percent of Academy teachers judged them to be adequate, compared to 45 percent of non-Academy teachers.[15] There were similar differences between Academy and non-Academy teachers in reports on the adequacy of their material and non-material resources.

Table 7.3 also presents two items under the category "influence over areas of work" that indicate whether teachers feel they have influence over the instruction-related and administrative aspects of their work. The first item summarizes teachers' ratings of statements related to the influence they feel they have on instruction, including selecting curriculum content, topics, and the skills they teach; selecting textbooks; determining the content of their professional development activities; and acquiring new equipment and materials. More than three-quarters of Career Academy teachers reported having considerable influence over these instruction-related areas, compared to 54 percent of non-Academy teachers.[16]

The second item in this category summarizes teachers' ratings of statements related to the influence they have on administrative policies, including the daily schedule, which classes they teach, which students they have in class, and disciplinary policy. Most teachers in the sample said that they had at least some influence over one or more of these areas. Academy and non-Academy teachers differed in the extent to which they reported having considerable influence over several of these areas, though relatively few felt they had much influence. Still, 37 percent of Academy teachers felt they had

---

[14]The response set for each statement ranged from 1 (strongly disagree) to 6 (strongly agree). An average of 5 or higher on these statements was considered indicative that respondents felt they were engaged in a high degree of collaboration. Table 7.3 shows the percentage of Academy and non-Academy teachers whose response to these four statements was an average of 5 or higher.

[15]The response set for each statement ranged from 1 (very inadequate) to 5 (very adequate). An average of 4 or higher on these statements was considered indicative that respondents felt their resources were adequate for optimal teaching success. Table 7.3 shows the percentage of Academy and non-Academy teachers whose response to these seven statements was an average of 4 or higher.

[16]The response set for each statement ranged from 1 (none) to 7 (a great deal of influence). An average of 4 or higher on these statements was considered indicative that respondents felt they had considerable influence over these areas of their work. Table 7.3 shows the percentage of Academy and non-Academy teachers whose response to these statements was an average of 4 or higher.

considerable influence over these areas, compared to 15 percent of non-Academy teachers.[17] Moreover, 64 percent of Academy teachers felt that they had at least some influence over these areas, compared to 37 percent of the non-Academy teachers (not shown in Table 7.3).

IV. Teachers' Relationships with Students

A central goal of the Career Academy approach is to create closer relationships between teachers and students and to personalize instruction. Field interviews with Academy teachers and students, as well as observations of Academy classes and activities, indicate that all of the Career Academies in this study emphasize and achieve closer relationships between teachers and students than do many other high school programs. During interviews, many students cited examples of occasions when their Academy teachers extended themselves to help with personal problems, as well as with problems they were having in school. Academy teachers also gave examples of individual and collaborative efforts they made to keep students engaged in school and to help them in other aspects of their lives. They contrasted this with their experiences outside the Academy.

One Academy teacher, for example, described his efforts to get a student who was absent from school for several days to return and stop spending time with a gang. After making several visits to the student's home and meeting with his parents, the teacher tracked the student down at a playground several miles from school. The teacher approached the student in front of his young "mini-gang" and vigorously pressed him to return to school. The student began attending regularly, although he still had difficulty completing assignments.

During a staff team meeting at another Academy, teachers were observed discussing students who were having problems. One student had run away from home; the parents called one of the Academy teachers to ask that she send the student home (the family assumed that the student would contact this teacher). After obtaining the parent's assurance that the student would not be physically harmed if she came home, the teacher persuaded the student to go home.

These examples of personalized support for students appear to be more prevalent in the Academies than elsewhere in the high school environment. In several sites, Academy teachers who also teach classes outside the Academy reported having closer relationships with Academy students than with their students in non-Academy classes. In Academy staff meetings, teachers frequently discuss students' problems, field trips, and other Academy activities that are designed to build personalized relationships with students.

This contrast between Academy and non-Academy environments can be seen at the bottom of Table 7.3, which presents two dimensions of teacher/student relationships. The first item summarizes teachers' ratings of statements related to the extent to which they take a personal interest in students beyond the classroom, including "It is important that I spend time in class talking about issues related to students' personal development," "I make a conscious effort to show students I care about them," "It is important for me to know something about my students' families," "I feel I should be accessible

---

[17]The response set for each statement ranged from 1 (strongly disagree) to 6 (strongly agree). An average of 5 or higher on these statements was considered indicative that respondents placed a high level of emphasis on personalized relationships with students. Table 7.3 shows the percentage of Academy and non-Academy teachers whose response to these statements was an average of 5 or higher.

to students even if it means meeting with them before or after school," and "I believe that teachers should keep their relationships with students in their classes focused strictly on coursework." Nearly all of the teachers in the sample attached some importance to many of these areas. Career Academy teachers were more likely than their non-Academy counterparts to place major emphasis on personalized relationships with students: 70 percent of Academy teachers placed a high emphasis on personalized relationships with students, compared to 51 percent of non-Academy teachers.[18]

The final item in Table 7.3 summarizes teachers' ratings of statements related to their sense of responsibility and caring for students as individuals, including "I feel that it's part of my responsibility to keep students from dropping out of school," "If I try really hard, I can get through to even the most difficult or unmotivated students," "I should be accessible to students even if it means meeting with them before or after school," "I am certain I am making a difference in the lives of my students," and "I make a conscious effort to show students I care about them." Virtually all of the teachers in this sample attached some importance to these aspects of their relationships with students, and the difference between Academy and non-Academy teachers is not large: 67 percent of Academy teachers placed a high level of emphasis on responsibility and caring for students, compared to 55 percent of non-Academy teachers.[19]

V. Summary

The evidence from the survey of Academy and non-Academy teachers indicates that most Academy teachers closely resemble their non-Academy counterparts, but they experience quite different working conditions. The Academies have teachers of roughly the same average age, gender distribution, race/ethnicity distribution, training, and teaching experience as the rest of the teachers in the host high schools. Academy teachers are much more likely, however, than their non-Academy counterparts to report concrete ways in which they experience being part of a teacher learning community and that they engage in personalized relationships with their students. The findings support the conclusion that the distinctiveness of the Academy teachers and their perspectives on their work are at least in part a product of the distinctive structure of Career Academies. Future reports will present further data and analyses to examine these issues in greater detail and explore how they may be influencing students' experiences.

---

[18]The response set for each statement ranged from 1 (strongly disagree) to 6 (strongly agree). An average of 5 or higher on these statements was considered indicative that respondents placed a high level of emphasis on caring for students. Table 7.3 shows the percentage of Academy and non-Academy teachers whose response to these statements was an average of 5 or higher.

[19]This difference is not statistically significant, so one cannot be confident that it reflects a real difference between Academy and non-Academy teachers' responses.

APPENDIX A

ITEMS FROM THE TEACHER QUESTIONNAIRE USED TO CREATE INDICATORS OF TEACHERS' PERCEPTIONS OF THEIR WORK

Table A.1

Career Academies Evaluation

Items from the Teacher Questionnaire Used to Create Indicators of Teachers' Perceptions of Their Work

---

Teacher Learning Community (Cronbach's Alpha = .81)

14. Using the scale provided, indicate how strongly you agree or disagree with each of the following statements regarding your current job. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

    a. I feel that I have many opportunities to learn new things in my present job.
    b. I work closely with other teachers who support my efforts to try out new ideas.
    d. I work closely with other teachers to solve problems; not just talk about them.
    f. My job provides me with continuing professional stimulation and growth.
    g. Most other teachers with whom I work are continually learning and seeking new ideas.
    h. Most other teachers with whom I work seldom evaluate their curriculum and classroom activities. [This item was reverse-coded for consistency of scaling.]

Teacher Collaboration (Cronbach's Alpha = .87)

11. For [your most typical class], indicate the extent to which you agree or disagree with each statement. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

    a. I work with other teachers to develop materials and activities for this class.
    b. I meet regularly with other teachers to discuss different ways of teaching this class.
    c. I meet regularly with other teachers to discuss problems I have with students in this class.
    d. I make a conscious effort to coordinate the content of this class with teachers in other subject area departments.

Resource Adequacy (Cronbach's Alpha = .87)

15. Please indicate the extent to which you judge resources in your current job to be adequate or inadequate for your optimal success as a teacher. (Scale: 1 = "Very Inadequate" to 5 = "Very Adequate") [Respondents were also given the opportunity to answer this question with "Not relevant to my success." Teachers who gave this response were not included in the calculation for this indicator.]

    a. A place to get together with colleagues.
    b. Capacity to photocopy instructional materials for students in my classes.
    c. Time to meet with colleagues.
    d. Release time to participate in conferences and workshops.
    e. Instructional equipment for my classroom.
    f. Opportunities to address collective problems of students in the school (e.g., race relations, academic motivation, absenteeism, etc.).
    g. Opportunities to discuss specific students with my colleagues.

Influence over Instruction-Related Areas (Cronbach's Alpha = .69)

13. Using the scale provided, indicate how much influence you feel you have over the following areas of your work. (Scale: 1 = "None" to 6 = "A Great Deal")

    a. Determining the content of your professional development or in-service activities.
    b. Selecting content, topics, and skills you teach.
    c. Selecting your textbooks and other instructional materials.
    h. Acquiring new equipment, materials, or other resources for use in your classes.

(continued)

Table A.1 (continued)

Influence over Administrative Policies (Cronbach's Alpha = .71)

13. Using the scale provided, indicate how much influence you feel you have over the following areas of your work. (Scale: 1 = "None" to 6 = "A Great Deal")

    d. Determining which classes you teach.
    e. Determining which students you will have in your classes.
    f. Determining the daily schedule.
    g. Setting disciplinary policies for students.

Emphasis on Personalized Relationships with Students (Cronbach's Alpha = .74)

12. The statements below concern your goals for students' educational outcomes and for your relationships with students. Using the scale provided, indicate how strongly you agree or disagree with each statement as it applies to your own teaching philosophy and practice. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

    c. It is important that I spend time in class talking about issues related to students' personal development even if it takes time away from covering subject matter content.
    e. I make a conscious effort to show my students that I care about them.
    f. It is important for me to know something about my students' families.
    g. I feel that I should be accessible to students even if it means meeting with them before or after school, during my prep or free period, etc.
    h. I believe that teachers should keep their relationships with students in their classes focused strictly on course work. [This item was reverse-coded for consistency of scaling.]

Emphasis on Caring About Students (Cronbach's Alpha = .73)

12. The statements below concern your goals for students' educational outcomes and for your relationships with students. Using the scale provided, indicate how strongly you agree or disagree with each statement as it applies to your own teaching philosophy and practice. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

    e. I make a conscious effort to show my students that I care about them.
    g. I feel that I should be accessible to students even if it means meeting with them before or after school, during my prep or free period, etc.
    i. I feel that it's part of my responsibility to keep students from dropping out of school.
    j. If I try really hard, I can get through to even the most difficult or unmotivated students.
    m. I am certain I am making a difference in the lives of my students.

Source: MDRC calculations from Career Academies Evaluation Teacher Questionnaire.

Notes: The number and letter before each item indicates its location in the Career Academies Teacher Questionnaire, which is available from MDRC.

Cronbach's Alpha is a statistical measure of an indicator's reliability in terms of the extent to which items used to create a scale are correlated with each other. Indicators with alpha values of .70 or higher are considered highly reliable.

Indicators were created by calculating teachers' average response to the items listed.

BEST COPY AVAILABLE

REFERENCES

Academy for Educational Development. 1990. *Employment and Educational Experiences of Academy of Finance Graduates*. New York: Academy for Educational Development.

Academy for Educational Development. 1989. *Partnerships for Learning: School Completion and Employment Preparation in the High School Academies*. New York: Academy for Educational Development.

Berryman, Sue. 1995. "Apprenticeship as a Paradigm of Learning." In *Education Through Occupations in American High Schools, Volume 1: Approaches to Integrating Academic and Vocational Education*, ed. W. Norton Grubb. New York: Teachers College Press.

Berryman, Sue. 1991. *Cognitive Science: Indicting Today's Schools and Designing Effective Learning Environments*. Washington, D.C.: U.S. Department of Labor, National Council on Vocational Education and Employment and Training Administration.

Berryman, Sue, and Thomas Bailey. 1992. *The Double Helix of Education and the Economy*. New York: Teachers College Press.

Bos, Johannes M. 1995. *The Labor Market Value of Remedial Education: Evidence from Time Series Data on an Experimental Program for School Dropouts*. Doctoral dissertation. New York University.

Cameron, Stephen, and James Heckman. 1993. "The Nonequivalence of High School Equivalents." *Journal of Labor Economics* 11(1), 1-47.

Cave, George, Hans Bos, Fred Doolittle, and Cyril Toussaint. 1993. *JOBSTART: Final Report on a Program for School Dropouts*. New York: Manpower Demonstration Research Corporation.

Cave, George, and Fred Doolittle. 1991. *Assessing JOBSTART: Interim Impacts of a Program for School Dropouts*. New York: Manpower Demonstration Research Corporation.

Connell, James, Lawrence Aber, and Gary Walker. 1995. "How Do Urban Communities Affect Youth? Using Social Science Research to Inform the Design and Evaluation of Comprehensive Community Initiatives." In *New Approaches to Evaluating Comprehensive Community Initiatives: Concepts, Methods, and Context*, eds., James Connell, Anne Kubisch, Lisbeth Schorr, and Carol Weiss. Queenstown, MD: Aspen Institute.

Dewey, John. 1916. *Democracy and Education: An Introduction to the Philosophy of Education*. New York: Macmillan.

Felner, Robert, and Angela Adan. 1989. "The School Transitional Environment Project: An Ecological Intervention and Evaluation." In *14 Ounces of Prevention: A Casebook for Practitioners*, eds. Richard Price, Emory Cowen, Raymond Lorion, and Julia Ramos-McKay. Washington, D.C.: American Psychological Association.

Felner, Robert, Judith Primavera, and Ana Cauce. 1981. "The Impact of School Transitions: A Focus for Preventive Efforts." *American Journal of Community Psychology* 9(4), 449-459.

Finn, Jeremy, and Charles Achilles. 1990. "Answers and Questions About Class Size: A Statewide Experiment." *American Education Research Journal* 27(3), 557-577.

Glass, Gene, Leonard Cahen, Mary Lee Smith, and Nikola Filby, Nikola. 1982. *School Class Size: Research and Policy*. Beverly Hills, CA: Sage Publications.

Grubb, W. Norton, ed. *Education Through Occupations in American High Schools, Volume 1: Approaches to Integrating Academic and Vocational Education*. 1995. New York: Teachers College Press.

Grubb, W. Norton, Gary Davis, Jeannie Lum, Jane Plihal, and Carol Morgaine. 1991. *The Cunning Hand, the Cultured Mind: Models for Integrating Vocational and Academic Education*. Berkeley, CA: National Center for Research in Vocational Education.

Grubb, W. Norton, and Marvin Lazerson. 1975. "Rally 'Round the Workplace: Continuities and Fallacies in Career Education." *Harvard Educational Review* 45(4), 451-474.

Hill, Paul, Gail Foster, and Tamar Gendler. 1990. *High Schools with Character*. Santa Monica, CA: Rand Corporation.

Johnson, Susan Moore. 1990. *Teachers at Work: Achieving Success in Our Schools*. New York: Basic Books.

Lazerson, Marvin, and W. Norton Grubb. 1974. *American Education and Vocationalism: A Documentary History, 1870-1970*. New York: Teachers College Press.

Louis, Karen Seashore, and Matthew Miles. 1990. *Improving the Urban High School: What Works and Why*. New York: Teachers College Press.

Marshall, Ray, and Marc Tucker. 1992. *Thinking for a Living: Work, Skills, and the Future of the Economy*. New York: Basic Books.

McLaughlin, Milbrey. 1993. "What Matters Most in Teachers' Workplace Context?" In *Teachers' Work: Individuals, Colleagues, and Contexts*. eds. Judith Warren Little and Milbrey McLaughlin. New York: Teachers College Press.

McLaughlin, Milbrey, and Joan Talbert. 1993. *Contexts That Matter for Teaching and Learning: Strategic Opportunities for Meeting the Nation's Education Goals*. Stanford, CA: Center for Research on the Context of Secondary School Teaching.

Mullis, Ina, Eugene Owen, and Gary Phillips. 1990. *America's Challenge: Accelerating Academic Achievement, a Summary of Findings from 20 Years of NAEP*. Princeton, NJ: Educational Testing Service.

Murnane, Richard, and Frank Levy. 1992. "Education and Training." In *Setting Domestic Priorities: What Can Government Do?* eds. Henry Aaron and C. L. Schultze. Washington, D.C.: Brookings Institution.

National Center on Education and the Economy's Commission on the Skills of the American Workforce. 1990. *America's Choice: High Skills or Low Wages!* Rochester, NY: National Center on Education and the Economy.

National Commission on Excellence in Education. 1983. *A Nation At Risk: The Imperative for Education*, a report prepared for the U.S. Department of Education. Washington, D.C.: U.S. Government Printing Office.

Natriello, Gary, ed. *School Dropouts: Patterns and Policies*. 1987. New York: Teachers College Press.

Orr, Larry, Howard Bloom, Stephen Bell, Winston Lin, George Cave, and Fred Doolittle. 1994. *The National JTPA Study: Impacts, Benefits, and Costs of Title II-A*. Bethesda, MD: Abt Associates.

Pauly, Edward. 1991. *The Classroom Crucible: What Really Works, What Doesn't, and Why*. New York: Basic Books.

Pauly, Edward, Hilary Kopp, and Joshua Haimson. 1995. *Homegrown Lessons: Innovative Programs Linking School and Work*. San Francisco: Jossey-Bass Publishers.

Penn, Alexandra. 1994. "Virtual Learning: A Model for Integrating Academic and Vocational Curricula." Unpublished manuscript.

Powell, Arthur, David Cohen, and Eleanor Farrar. 1985. *The Shopping Mall High School*. Boston: Houghton Mifflin.

Raizen, Senta. 1989. *Reforming Education for Work: A Cognitive Science Perspective*. Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Resnick, Lauren. 1987a. *Education and Learning to Think*. Washington, D.C.: National Academy Press.

Resnick, Lauren. 1987b. "The 1987 Presidential Address: Learning In School and Out." In *Educational Researcher* 16(9), 13-20.

Roderick, Melissa. 1993. *The Path to Dropping Out: Evidence for Intervention*. Westport, CT: Auburn House.

Sarason, Seymour. 1990. *The Predictable Failure of Educational Reform: Can We Change Course Before It's Too Late?* San Francisco: Jossey-Bass Publishers.

Sizer, Theodore. 1984. *Horace's Compromise: The Dilemma of the American High School*. Boston: Houghton Mifflin.

Snyder, Phyllis, and Bernard McMullan. 1987. *Allies in Education: A Profile of Philadelphia High School Academies*. Philadelphia: Public/Private Ventures.

Stasz, Cathleen, Kimberly Ramsey, Rick Elden, Joan DaVanzo, Hilary Farris, and Matthew Lewis. 1993. *Classrooms That Work: Teaching Generic Skills in Academic and Vocational Settings*. Santa Monica, CA: Rand Corporation.

Stern, David, Charles Dayton, Il-Wu Paik, and Allan Weisberg. 1989. "Benefits and Costs of Dropout Prevention in a High School Program Combining Academic and Vocational Education: Third-Year Results from Replications of the California Peninsula Academies." *Educational Evaluation and Policy Analysis* 11(4), 405-416.

Stern, David, Neal Finkelstein, James Stone III, John Latting, and Carolyn Dornsife. 1994. *Research on School-to-Work Transition Programs in the United States*. Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Stern, David, Marilyn Raby, and Charles Dayton. 1992. *Career Academies: Partnerships for Reconstructing American High Schools*. San Francisco: Jossey-Bass Publishers.

Talbert, Joan, and Milbrev McLaughlin. 1994. "Teacher Professionalism in Local School Contexts." *American Journal of Education* (102)123-153.

U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. 1992. *A Comparison of Vocational and Non-Vocational Public School Teachers of Grades 9 to 12*. Washington, D.C.: U.S. Government Printing Office.

U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. 1990. *National Education Longitudinal Study of 1988: A Profile of the American Eighth Grader — NELS:88 Student Descriptive Summary*. Washington, D.C.: U.S. Government Printing Office.

Wehladge, Gary, Robert Rutter, Gregory Smith, Nancy Lesko, and Ricardo Fernandez. 1989. *Reducing the Risk: Schools as Communities of Support*. Philadelphia: Falmer Press.

William T. Grant Foundation Commission on Work, Family and Citizenship. 1988. *The Forgotten Half: Pathways to Success for America's Youth and Young Families*. Washington, D.C.: William T. Grant Foundation Commission.

Zeldin, Shepherd. 1995. *Preparing Youth for Adulthood: Common Ground Between the School-to-Work Youth Development Fields*. Washington, D.C.: Center for Youth Development and Policy Research, Academy for Educational Development.

SELECTED PUBLICATIONS ON MDRC PROJECTS

EDUCATION REFORM

The Career Academies Evaluation

A 10-site study of a promising approach to high school restructuring and the school-to-work transition.

Career Academies: Early Implementation Lessons from a 10-Site Evaluation. 1996. James Kemple, JoAnn Leah Rock.

The School-to-Work Transition Project

A study of innovative programs that help students make the transition from school to work.

The School-to-Work Transition and Youth Apprenticeship: Lessons from the U.S. Experience. 1993. Thomas Bailey, Donna Merritt.

Homegrown Lessons: Innovative Programs Linking School and Work (Jossey-Bass Publishers). Book. 1995. Edward Pauly, Hilary Kopp, Joshua Haimson. Revised version of a 1994 MDRC report.

Learning Through Work: Designing and Implementing Quality Worksite Learning for High School Students. 1994. Susan Goldberger, Richard Kazis, Mary Kathleen O'Flanagan (all of Jobs for the Future).

OTHER PROGRAMS FOR YOUTH

The JOBSTART Demonstration

A test of a program combining education, training, support services, and job placement for very disadvantaged young high school dropouts.

The Pilot Phase: A Case Study of Five Youth Training Programs. 1985. Michael Redmond.

Launching JOBSTART: A Demonstration for Dropouts in the JTPA System. 1987. Patricia Auspos.

Implementing JOBSTART: A Demonstration for School Dropouts in the JTPA System. 1989. Patricia Auspos, George Cave, Fred Doolittle, Gregory Hoerz.

Assessing JOBSTART: Interim Impacts of a Program for School Dropouts. 1991. George Cave, Fred Doolittle.

JOBSTART: Final Report on a Program for School Dropouts. 1993. George Cave, Hans Bos, Fred Doolittle, Cyril Toussaint.

The Career Beginnings Evaluation

An evaluation of a program that seeks to increase college attendance and improve job quality among disadvantaged high school students.

Career Beginnings Impact Evaluation: Findings from a Program for Disadvantaged High School Students. 1990. George Cave, Janet Quint.

The Youth Incentive Entitlement Pilot Projects (YIEPP) Demonstration

A test of a school-conditioned job guarantee for low-income youth.

Lessons from a Job Guarantee: The Youth Incentive Entitlement Pilot Projects. Monograph. 1984. Judith Gueron.

PROGRAMS FOR TEENAGE PARENTS ON WELFARE

The LEAP Evaluation

An evaluation of Ohio's Learning, Earning, and Parenting (LEAP) Program, which uses financial incentives to encourage teenage parents on welfare to stay in or return to school.

LEAP: Implementing a Welfare Initiative to Improve School Attendance Among Teenage Parents. 1991. Dan Bloom, Hilary Kopp, David Long, Denise Polit.

LEAP: Interim Findings on a Welfare Initiative to Improve School Attendance Among Teenage Parents. 1993. Dan Bloom, Veronica Fellerath, David Long, Robert Wood.

LEAP: The Educational Effects of LEAP and Enhanced Services in Cleveland. 1994. David Long, Robert Wood, Hilary Kopp.

LEAP: Three Year Impacts of Ohio's Welfare Initiative to Improve School Attendance Among Teenage Parents. 1996. David Long, Judith Gueron, Robert Wood, Rebecca Fisher, Veronica Fellerath.

Note: For works not published by MDRC, the publisher's name is shown in parentheses.

BEST COPY AVAILABLE

The New Chance Demonstration

A test of a comprehensive program of services that seeks to improve the economic status and general well-being of a group of highly disadvantaged young women and their children.

New Chance: Implementing a Comprehensive Program for Disadvantaged Young Mothers and Their Children. 1991. Janet Quint, Barbara Fink, Sharon Rowser.

Lives of Promise, Lives of Pain: Young Mothers After New Chance. Monograph. 1994. Janet Quint, Judith Musick, with Joyce Ladner.

New Chance: Interim Findings on a Comprehensive Program for Disadvantaged Young Mothers and Their Children. 1994. Janet Quint, Denise Polit, Hans Bos, George Cave.

Project Redirection

A test of a comprehensive program of services for pregnant and parenting teenagers.

The Challenge of Serving Teenage Mothers: Lessons from Project Redirection. Monograph. 1988. Denise Polit, Janet Quint, James Riccio.

The Community Service Projects

A test of a New York State teenage pregnancy prevention and services initiative.

The Community Service Projects: Final Report on a New York State Adolescent Pregnancy Prevention and Services Program. 1988. Cynthia Guy, Lawrence Bailis, David Palasits, Kay Sherwood.

WELFARE-TO-WORK PROGRAMS

Books and Monographs

Reforming Welfare with Work (Ford Foundation). Monograph. 1987. Judith M. Gueron. A review of welfare-to-work initiatives in five states.

From Welfare to Work (Russell Sage Foundation). Book. 1991. Judith M. Gueron, Edward Pauly. A synthesis of research findings on the effectiveness of welfare-to-work programs. Chapter 1, which is the summary of the book, is also published separately by MDRC.

Five Years After: The Long-Term Effects of Welfare-to-Work Programs (Russell Sage Foundation). Book. 1995. Daniel Friedlander, Gary Burtless. An analysis of five-year follow-up data on four welfare-to-work programs.

Reports and Other Publications

The JOBS Evaluation

An evaluation of welfare-to-work programs operating under the Job Opportunities and Basic Skills Training (JOBS) provisions of the Family Support Act of 1988.

The JOBS Evaluation: Early Lessons from Seven Sites (U.S. Department of Health and Human Services [HHS] and U.S. Department of Education [ED]). 1994. Gayle Hamilton, Thomas Brock.

The JOBS Evaluation: Adult Education for People on AFDC — A Synthesis of Research. (U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation [HHS, ASPE]). 1995. ED and HHS. Prepared by Edward Pauly.

The JOBS Evaluation: Early Findings on Program Impacts in Three Sites. (HHS, ASPE). 1995. HHS and ED. Prepared by Stephen Freedman, Daniel Friedlander.

The JOBS Evaluation: Monthly Participation Rates in Three Sites and Factors Affecting Participation Levels in Welfare-to-Work Programs. (HHS, ASPE). 1995. HHS and ED. Prepared by Gayle Hamilton.

The Cross-State Study of Time-Limited Welfare

An examination of the implementation of some of the first state-initiated time-limited welfare programs.

Implementing Time-Limited Welfare: Early Experiences in Three States. 1995. Dan Bloom, David Butler.

Florida's Family Transition Program

A study of Florida's time-limited welfare program.

The Family Transition Program: An Early Implementation Report on Florida's Time-Limited Welfare Initiative. 1995. Dan Bloom.

The Minnesota Family Investment Program (MFIP)

An evaluation of Minnesota's welfare reform initiative.

MFIP: An Early Report on Minnesota's Approach to Welfare Reform. 1995. Virginia Knox, Amy Brown, Winston Lin.

Canada's Self-Sufficiency Project (SSP)

A test of the effectiveness of a temporary earnings supplement on the employment and welfare receipt of public assistance recipients. Reports on the Self-Sufficiency Project are available from: Social Research and Demonstration Corporation (SRDC), 275 Slater St., Suite 900, Ottawa, Ontario K1P 5H9, Canada. Tel.: 613-237-4311; Fax: 613-237-5045. The reports are also available from MDRC.

When Work Pays Better Than Welfare: A Summary of the Self-Sufficiency Project's Implementation, Focus Group, and Initial 18-Month Impact Reports (Social Research and Demonstration Corporation). 1996.

The GAIN Evaluation

An evaluation of California's Greater Avenues for Independence (GAIN) Program, the state's JOBS program.

GAIN: Basic Education in a Welfare-to-Work Program. 1994. Karin Martinson, Daniel Friedlander.

GAIN: Benefits, Costs, and Three-Year Impacts of a Welfare-to-Work Program. 1994. James Riccio, Daniel Friedlander, Stephen Freedman.

The Evaluation of Florida's Project Independence

An evaluation of Florida's JOBS program.

Florida's Project Independence: Benefits, Costs, and Two-Year Impacts of Florida's JOBS Program. 1995. James Kemple, Daniel Friedlander, Veronica Fellerath.

Papers for Practitioners

Assessing JOBS Participants: Issues and Trade-offs. 1992. Patricia Auspos, Kay Sherwood.

Linking Welfare and Education: A Study of New Programs in Five States. 1992. Edward Pauly, David Long, Karin Martinson.

Improving the Productivity of JOBS Programs. 1993. Eugene Bardach.

Working Papers

Working Papers related to a specific project are listed under that project.

Learning from the Voices of Mothers: Single Mothers' Perceptions of the Trade-offs Between Welfare and Work. 1993. LaDonna Pavetti.

Unpaid Work Experience for Welfare Recipients: Findings and Lessons from MDRC Research. 1993. Thomas Brock, David Butler, David Long.

The Saturation Work Initiative Model (SWIM)

A test of the feasibility and effectiveness of an ongoing participation requirement in a welfare-to-work program.

The Saturation Work Initiative Model in San Diego: A Five-Year Follow-up Study. 1993. Daniel Friedlander, Gayle Hamilton.

The Self-Employment Investment Demonstration (SEID)

A test of the feasibility of operating a program to encourage self-employment among recipients of AFDC.

Self-Employment for Welfare Recipients: Implementation of the SEID Program. 1991. Cynthia Guy, Fred Doolittle, Barbara Fink.

THE PARENTS' FAIR SHARE DEMONSTRATION

A demonstration aimed at reducing child poverty by increasing the job-holding, earnings, and child support payments of unemployed, noncustodial parents (usually fathers) of children receiving public assistance.

Matching Opportunities to Obligations: Lessons for Child Support Reform from the Parents' Fair Share Pilot Phase. 1994. Dan Bloom, Kay Sherwood.

THE NATIONAL SUPPORTED WORK DEMONSTRATION

A test of a transitional work experience program for four disadvantaged groups.

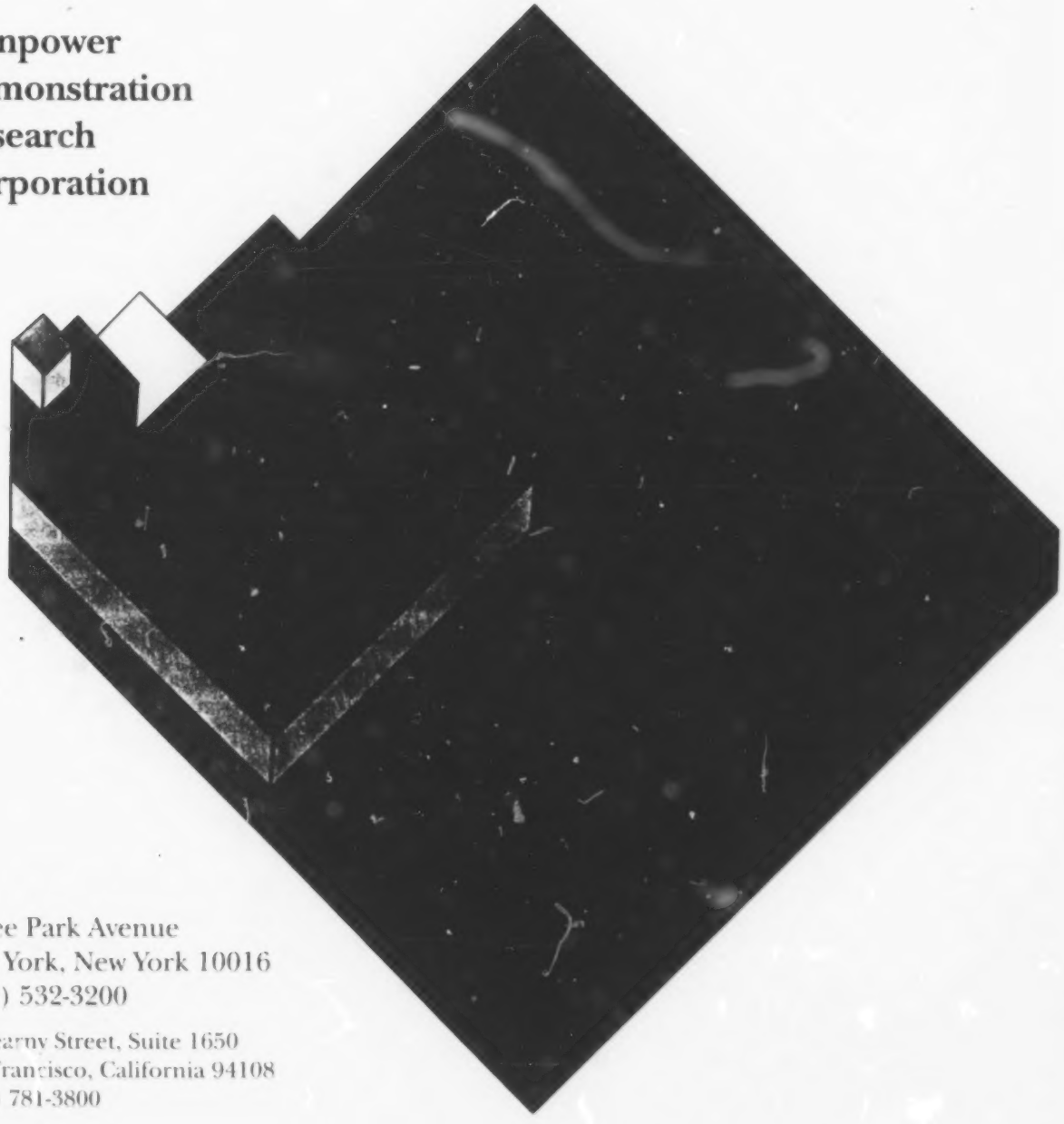
Summary and Findings of the National Supported Work Demonstration. 1980. MDRC Board of Directors.

About MDRC

The Manpower Demonstration Research Corporation (MDRC) is a nonprofit social policy research organization founded in 1974 and located in New York City and San Francisco. Its mission is to design and rigorously field-test promising education and employment-related programs aimed at improving the well-being of disadvantaged adults and youth, and to provide policymakers and practitioners with reliable evidence on the effectiveness of social programs. Through this work, and its technical assistance to program administrators, MDRC seeks to enhance the quality of public policies and programs. MDRC actively disseminates the results of its research through its publications and through interchanges with a broad audience of policymakers and practitioners; state, local, and federal officials; program planners and operators; the funding community; educators; scholars; community and national organizations; the media; and the general public.

Over the past two decades – working in partnership with more than forty states, the federal government, scores of communities, and numerous private philanthropies – MDRC has developed and studied more than three dozen promising social policy initiatives.

Manpower Demonstration Research Corporation



Three Park Avenue
New York, New York 10016
(212) 532-3200

88 Kearny Street, Suite 1650
San Francisco, California 94108
(415) 781-3800

MDRC